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January 29, 2001

Jim Loock, Chief Electric Engineer Public Service Commission 610 N. Whitney Way P.O. Box 7854 Madison, WI 53707-7854

RE:

In the Matter of Filing Plans for Appropriate Inspection and

Maintenance, PSC Rule 113.0607.

Dear Mr. Loock:

Enclosed for filing are 3 copies of Manitowoc Public Utilities' Preventative Maintenance Plan detailing inspection maintenance schedules, condition rating criteria, corrective action schedules, record keeping procedures and report filing schedules as documented in this rule.

Very truly yours,

Kevin R. Carr

Electrical Engineer

Enclosures

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JAN 3 1 2001

Electric Division

PREVENTATIVE MAINTENANCE PLAN

Manitowoc Public Utilities

FILING DEADLINE FEBRUARY 1, 2001

December 19, 2000

P.O. Box 1090
1303 South 8th Street
Manitowoc, WI 54221
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Electric Division

This plan was prepared by the MEUW work group for PSC Rule 113.0607 for use by the 82 municipal electric utilities in Wisconsin and endorsed by PSC staff as meeting the requirements of Rule PSC 113.0607.

TABLE OF CONTENTS

		Page
I.	Preventative Maintenance Plan	2
II.	Inspection Schedule and Methods	2
III.	Condition Rating Criteria	4
IV.	Corrective Action Schedule	4
V.	Record Keeping	4
VI.	Reporting Requirements	4
VII.	Distribution – overhead inspection guide	5
VIII.	Distribution – underground inspection guide	7
IX.	Substation - Monthly inspection guide	8
X.	Substation – Annual Inspection Guide	11
XI.	Transmission – Annual Inspection Guide	12
XII.	Transmission – 5 Year Inspection Guide	13

Appendix A - OVERHEAD DISTRIBUTION INSPECTION FORM

Appendix B - UNDERGROUND DISTRIBUTION INSPECTION FORM

Appendix C - MONTHLY SUBSTATION INSPECTION FORMS

- Custer Substation
- Revere Substation
- Northeast Substation
- Lakefront Substation
- Mirro Substation
- Rapids Substation
- 'A' Substation

Appendix D - ANNUAL SUBSTATION INSPECTION FORM

Appendix E - ANNUAL TRANSMISSION INSPECTION FORM

I. Preventative Maintenance Plan

The PSC 113.0607 rule reads;

Appropriate inspection and maintenance: system reliability.

- (1) PREVENTATIVE MAINTENANCE PLAN. Each utility or other person subject to this chapter, including persons who own electric generating facilities in this state who provide service to utilities with contracts of five years or more, shall develop and have in place its own preventative maintenance plan. This section is applicable to electric generating facilities as set forth at s. 194.491(5)(a)(1), Stats. Each plan shall include, among other things, appropriate inspection, maintenance and replacement cycles where applicable for overhead and underground distribution plant, transmission, generation¹, and substation facilities.
- (2) CONTENTS OF THE PLAN. (a) *Performance standard*. The Preventative Maintenance Plan shall be designed to ensure high quality, safe, and reliable service, considering: cost, geography, weather, applicable codes, national electric industry practices, sound engineering judgment and experience.
- 1 PSC staff interpretation is that generation applies to individual generators equal to or greater than 50 MW.

II. Inspection Schedule and Methods:

The purpose of this plan is to maintain or improve the electrical system reliability with the objective of increased municipal loyalty and satisfaction from our constituents. The goals are to meet and exceed the schedules established in this plan.

Exception reporting (inspected equipment not in good condition) will be the method of documentation on all inspection forms.

The scope of this plan is traditional and uses proven maintenance techniques. Unique operating and maintenance philosophies have not been considered. Also, manufacturer defects will be dealt with as they are communicated to this utility.

EVERY

			_ ,
SCHEDULE:	MONTHLY	ANNUAL	5 YEARS
Transmission (≥69Kv and above)		X	X
Substations	X	X	
Distribution (OH & UG)			X

The inspection of Distribution facilities will be by individual substation circuits on a 5-year cycle such that the entire system will be inspected every 5 years. Inspector instructions for inspecting all facilities and forms are included with the plan.

METHODS: Five criteria groups will be used to complete the inspection of all facilities.

- 1. <u>IR</u> infrared thermography used to find poor electrical connections and/or oil flow problems in equipment.
- 2. <u>RFI</u> Radio Frequency Interference, a byproduct of loose hardware and connections, is checked using an AM radio receiver.
- 3. <u>SI</u> structural integrity of all supporting hardware including poles, crossarms, insulators, structures, bases, foundations, buildings, etc.
- 4. <u>Clearance</u> refers to proper spacing of conductors from objects, trees and other utility cables.
- 5. <u>EC</u> equipment condition on non-structural components such as circuit breakers, transformers, regulators, reclosers, relays, batteries, capacitors, etc.

III. Condition Rating Criteria:

This criterion, as listed below, establishes the condition of a facility and also determines the repair schedule to correct deficiencies.

- 0) Good condition
- 1) Good condition but aging
- 2) Non-critical maintenance required normally repair within 12 months
- 3) Priority maintenance required normally repair within 90 days
- 4) Urgent maintenance required report immediately to the utility and repair normally within 1 week

IV. Corrective Action Schedule

The rating criteria as listed above determine the corrective action schedule.

V. Record Keeping

All inspection forms and records will be retained for a minimum of 10 years. The inspection form contains all of the required critical information i.e. inspection dates, condition rating, schedule for repair and date of repair completion.

VI. Reporting Requirements

A report and summary of this plan's progress will be submitted every two years with the first report due to the Commission by February 1, 2003. The report will consist of a letter documenting the percent of inspections achieved compared to the schedule and a description of maintenance achieved within the scheduled time allowance.

VII DISTRIBUTION - OVERHEAD INSPECTION GUIDE

STRUCTURE

- Pole Condition
- Pole Leaning
- Crossarm Condition
- Insulators, Deadend, Pin
- Excess Fill or Soil Removal
- Pole Steps
- Grounds Intact
- Ground Molding
- Down Guys
- Guy Markers
- Guy Bonding/Insulator
- Signage Location Number, Warning Sign
- Customer Equipment
- Conductor
- Tie Wires
- U Guard/Conduit Condition

EQUIPMENT

- Transformers
 - ✓ Oil Leaks
 - ✓ Bushing Condition
 - ✓ Grounding/Bonding
- Capacitors
 - ✓ Fuses Blown
 - ✓ Bushing Condition
 - ✓ Oil Leaks
 - ✓ Tank Bulged
 - ✓ Switches, Oil, Vacuum
 - ✓ Control Conduit/Wiring
 - ✓ Grounding/Bonding
- Switches GOAB, Inline, Disconnect
 - ✓ Insulator Condition
 - ✓ Operating Handle/Locks
 - ✓ Linkage
 - ✓ Grounding/Bonding
 - ✓ Switch Number
- Cutouts
 - ✓ Insulator Condition
 - ✓ Fuse Size Tag

VII DISTRIBUTION - OVERHEAD INSPECTION GUIDE (con't)

EQUIPMENT (CON'T)

- Arrestor
 - ✓ Insulator Condition
 - ✓ Connections
 - ✓ Ground Lead Disconnection
- Cable Terminators
 - ✓ Insulator Condition
 - ✓ Grounding/Bonding

CLEARANCES

- Ground Line
- Buildings, Bridges, Swimming Pool, Etc.
- Communications Facilities
- Fuel Tanks
- Other Electric Utilities
- Transmission Lines
- Over Streets, Roads, Alleys, Highways
- Tree Trimming
 - ✓ Clearance From Line
 - ✓ Vines on Poles
 - ✓ Danger Trees

INFRARED SCAN

- Main Three-Phase Feeders
- Priority Overhead Transformer Banks
 - ✓ Bushing Connectors Primary
 - ✓ Bushing Connectors Secondary
 - ✓ General Tank Heating
- Current & Voltage Transformers if Applicable

RFI CHECK

OH system with AM radio as each circuit is inspected

VIII DISTRIBUTION - UNDERGROUND INSPECTION GUIDE

STRUCTURAL (Exterior & Interior) Transformer, Primary Pedestal, Secondary Pedestal, Switchgear.

- Enclosure Condition
- Level/Leaning
- Security
- Grade/Accessibility (Shrubs, Customer Facilities, Fill/Excavation)
- Numbering
- Voids/Gaps
- Signage Location Number, Warning Sign
- Pad/Vault Condition

EQUIPMENT

- Transformers
 - ✓ Oil Leaks
 - ✓ Bushing Condition
 - ✓ Grounding/Bonding
 - ✓ Elbows
 - ✓ Arrestors
 - ✓ Feed-Through
 - ✓ Cable Condition
 - ✓ Secondary Connections
- Primary Pedestals
 - ✓ Elbows
 - ✓ Junction Condition
 - ✓ Grounding/Bonding
- Secondary Pedestals
 - ✓ Secondary Connections
- Switches URD Switchgear
 - ✓ Insulator Condition
 - ✓ Operating Handle Security
 - ✓ Linkage
 - ✓ Grounding/Bonding
 - ✓ Switch Number/Fuse Size & Number

INFRARED SCAN and RFI CHECK

- Main Three-Phase Feeders (Risers & Switchgear)
- Priority URD Transformer Banks
 - ✓ Bushing Connectors Primary
 - ✓ Bushing Connectors Secondary
 - ✓ General Tank Heating

IX SUBSTATION - MONTHLY INSPECTION GUIDE

TRANSFORMER MAIN TANK:

- Oil in bushings
- Bushing and arrestor porcelain
 - ✓ Cracks or chips
 - ✓ Rust or dirt
- Oil leaks
 - ✓ Main tank
 - ✓ Sample valves
 - ✓ Radiators
- Radiator bank
 - ✓ warm on top, cool at bottom
- Tank pressure
- Tank oil level
- Temperature gauge
- Cooling fans

TRANSFORMER LTC or VOLTAGE REGULATORS:

- Tank oil level
- Drag hand positions
- Cabinet light
- Operation count
- Tank pressure
- Cabinet heater
- Cabinet contamination

TRANSMISSION CIRCUIT BREAKERS:

- OPEN/CLOSED indicator
- CHARGED/DISCHARGED indicator
- Cabinet light
- Cabinet heater
- Operations counter
- Bushings and supports
 - ✓ Cracks or chips
 - ✓ Rust or dirt
- Line and load side disconnect switches
 - ✓ Properly labeled
 - ✓ Aligned properly
- Handles grounded
- Emergency trip button
- Air / Oil compressors
- Air / Oil pressure gauge
- Spring operated mechanism
- Oil level gauge
- Tank oil leaks
- Reset switch
- Cabinet contamination
- Vents clean
- Gas pressures for GCBs

IX SUBSTATION - MONTHLY INSPECTION GUIDE (con't)

FEEDER CIRCUIT BREAKERS / RECLOSERS

- OPEN/CLOSED indicator
- CHARGED/DISCHARGED indicator
- Cabinet light
- Cabinet heater
- Operations counter
- Bushings and supports
 - Cracks or chips
 - ✓ Rust or dirt
- Line and load side disconnect switches
 - ✓ Labeled properly
 - ✓ Aligned properly
 - ✓ Handles grounded
- Emergency trip button
- Oil level gauge
- Tank oil leaks
- Reset switch
- Cabinet contamination
- Vents clean
- Gas pressures for GCBs

HIGH AND LOW VOLTAGE BUSS WORK:

- Bushing, insulator, arrestor, and support insulators
 - ✓ Chips or cracks
 - ✓ Rust or dirt
- Bird nests
- Potential transformers bushings
 - ✓ Cracks or chips
 - ✓ Rust or dirt
- Cable terminators
 - ✓ Leaking fluid
 - ✓ Cracks or chips

MANUAL SWITCHES:

- Properly labeled
- Ground connections
- Positioning and alignment
- Bushing and support insulators
 - ✓ Cracks or chips
 - ✓ Rust or dirt

MOTOR OPERATED SWITCHES:

- OPEN/CLOSED indicator
- Properly labeled
- Cabinet heater
- Operations counter

IX SUBSTATION - MONTHLY INSPECTION GUIDE (con't)

CONTROL HOUSE/MISCELLANEOUS:

- Clock displays proper time
- AC/DC load center breakers
- Room temperature
- Rodents
- Panels labeled properly
- Panel lights
- Annunciator panel
- Panel meters
- SCADA system RTU
- SCADA alarms
- Position indicators agree
- Relay target information
- Emergency contact directory & dial tone for phone
- Safety Equipment

BATTERY:

- Liquid levels
- Proper float voltage on charger and battery
- Specific gravity in pilot cell
- Personal Protective Equipment
- Connection corrosion
- Leaking cells
- Dated solution in eyewash station

YARD AND FENCE:

- Fire extinguisher charged
- Fence ground connections
- Fence secured
- Security and emergency lights
- Site base and grade
- Standing water
- Warning signs

X Substation - Annual Inspection Guide

- Check equipment for level
- Check condition of concrete pads
- Perform oil and DGA analysis
- Battery
 - ✓ Intercell strap resistance
 ✓ Individual cell voltages

 - ✓ Cell specific gravity
- Nameplate legible
- Equipment paint condition
- Proper equipment ID labels
- IR / RFI scans and checks

XI TRANSMISSION - ANNUAL INSPECTION GUIDE

STRUCTURE

- Pole Condition
- Pole Leaning
- Crossarm Condition
- Insulators, Deadend, Pin
- Excess Fill or Soil Removal
- Pole Steps
- Grounds Intact
- Ground Molding
- Down Guys
- Guy Markers
- Guy Bonding/Insulator
- Signage Location Number, Warning Sign
- Customer Equipment
- Conductor
- Tie Wires

EQUIPMENT

- Switches GOAB, Disconnect
 - ✓ Insulator Condition
 - ✓ Operating Handle/Locks
 - ✓ Linkage
 - ✓ Grounding/Bonding
 - ✓ Switch Number
- Arrestor
 - ✓ Insulator Condition
 - ✓ Connections

CLEARANCES

- Ground Line
- Buildings, Bridges, Etc.
- Communications Facilities
- Fuel Tanks
- Other Electric Utilities
- Over Streets, Roads, Alleys, Highways
- Tree Trimming
 - ✓ Clearance From Line
 - ✓ Vines on Poles
 - ✓ Danger Trees

XI TRANSMISSION - ANNUAL INSPECTION GUIDE (con't)

RFI CHECK

- Splices
- Connectors
- Dead Ends
- Switches
- Structures

XII TRANSMISSION - 5 YEAR INSPECTION GUIDE

IR SCAN

- Splices
- Connectors
- Dead Ends
- Switches

APPENDIX A

Overhead Distribution Inspection Form

Corrected By Date Item Corrected 2) Non-critical Maintenance Required 3) Priority Maintenance Required Sub 4) Urgent Maintenace Required 1) Good Condition but aging COMMENTS 0) Good Condition Inspected by_ Rating Criteria Communication Clearance CLEARANCE Streets, Roads, Alleys Building Clearances Date Ground Line Clearances Tree Trimming Street Light Sapacitors EQUIPMENT Terminators Arresters Cutouts Switches ransformer RFI Check U'Guard/Conduit Cond Conductor and Ties Customer Equipment Signs, Loc#, Warning STRUCTURE Guy Bond, Insulator Down Guys and Markers Grounds Intact, Molding Pole Steps Soil Conditions Insulators, DE, Pin Crossarm Condition Pole Condition/Leaning MAP AREA LOCATION

APPENDIX B

Underground Distribution Inspection Form

UNDERGROUND DISTRIBUTION INSPECTION FORM Date_____

. Circuit

Sub

_Inspected by__

Γ				-													
	Somected By																
	Date Item Corrected	1															
COMMENTS	Rating Criteria O) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenace Required																
IR / RFI Scan	Priority URD Transformers, Bushings and Tank heating										1	 			1	-	
IR/R	Main Three Phase Feeders, Risers & Switchgear											-			+	-	-
	Switches , Signage, Insulators, Security, Linkage, Ground, Bonds											-	\dagger				
ENT	Secondary Pedestals, Connections					T	1	_	-		\dagger	\dagger	1	\dagger	+	\dagger	
EQUIPMENT	Primary Pedestals , Elbows, Grounding, Bonds,Junction cond.														\dagger	-	
	Transformers , Leaks, Bushings, Grounding,Bonds,Elbows, Arrestors, Cable cond, Connections												-		-		
į	Pad / Vault Condition						1			 		-		-	-	\dagger	
	Signage																
RE	sqsƏ \ sbioV																
STRUCTURE	Mumbering	\downarrow	_		_												
STR	Grade / Accessibility	\downarrow	4			L	\downarrow	4									
	Security	\dashv	_					\downarrow		 		_					
	Level / Leaning	\bot	\perp	_			-	1	_	 			<u> </u>				
H	Enclosure Condition	+	+	_		_	\downarrow	4	_					_	_		
MAP AREA	EQUIPMENT																

APPENDIX C

Monthly Substation Inspection Forms

- Custer Substation
- Revere Substation
- Northeast Substation
- Lakefront Substation
- Mirro Substation
- Rapids Substation'A' Substation

Route: Dick Blashka Kevin Carr Kim Hackelberg (file)

Rating Criteria: 0 - Perfect Condition

1 - Good Condition, but aging

2 - Non-critical maintenance needed (normally repair within 12 months)

3 - Priority maintenance needed (normally repair within 90 days)

4 - Urgent maintenance needed (report immediately and repair within 1 week)

MPU Custer S	Sul	bs	tat	tion - I	Mor	nthi	v Ir	1Sr	ect	ion Form	
INSPECTED BY:							· · ·	151		011 1 0111	l
DATE:											
TEMPERATURE:											
LIVI EIGTOILE.											
	Т_										
	Good X	i Ba			CC	OMME	ENTS			DATE CORRECTED	CORRECTE
Transformer Bank #2 Main Tank				RATING	3: O	1	2	3	4	(Circle One)	<u> </u>
Tank oil level is halfway between high and low marks		T	Т							(5.1010 0110)	
Bushing and arrestor porcelain is not damaged or dirty	T										
Tank pressure is between 1 & 4 pounds positive			1	······································							
No oil leaks from main tank, radiators, valves			1								
Cooling fans work when placed in manual			7								
Record temperature gauge peaks and reset hands			T							-	
Radiator temperature increases from bottom to top											
Bushing oil level is halfway up sight glass			L								
Transformer David #6 1 mg											1
Transformer Bank #2 LTC				RATING	i: 0	1	2	3	4	(Circle One)	
Oil level is halfway between high and low marks			1_								
Record temperature drag hand positions and reset Cabinet light works	├	ļ	 								
		<u> </u>	↓								
Record LTC operation counter & update card Record LTC position peaks and reset	<u> </u>	 	—	· · · · · · · · · · · · · · · · · · ·							
Cabinet heater works below 60 deg F.			 								
Beckwith LTC backup control Block Raise/Lower lamps		<u> </u>	—								
display dim rather than bright			l								
36RL LTC lockout alarm light is OFF											
AGL LTR SUPV light is lit									·		
OK" LED on the M-2001 tap changer control is lit										 	
No signs of cabinet contamination											
TC tank pressure between 1&4 pounds positive											
A-101 69 kV Gas Circuit Breaker			<u> </u>								
				RATING	: 0	1	2	3	4	(Circle One)	
he Emergency trip switch is labeled and painted red									-		
he control door is clearly labeled A-101 GCB									-		
he position indicator displays the "Closed" position										†	
he gas pressure is within limits for current temperature										 	
he Charged/Discharged flag is clearly visible											
he emergency trip reset "69" switch is labeled & reset											
he cabinet light works											
he cabinet heater works below 60 deg F. abinet is free from contamination					_						
ushing and arrestor porcelain is not damaged or dirty	\dashv										
-101 GCB Line Side disconnect switch is clearly labeled -101 GCB Line Side disconnect switch is grounded											
-101 GCB Line Side disconnect switch is grounded -101 GCB Line Side disconnect switches are fully closed and	-+										
operly aligned		1									
101 GCB Buss Side disconnect switch is clearly labeled					·					 	
101 GCB Buss Side disconnect switch is grounded 101 GCB Buss Side disconnect switches are fully closed and										 	
operly aligned	T									 	
	$\neg +$	\dashv			-					+	
										1	1

Approved

'.	Good	Bad X		CO	MME	NTS			DATE CORRECTED	CORRECTI BY
69 kV Buss			RATING:	0	1	2	3	4	(Circle One)	
The porcelain bushings, buss supports, and switch posts are not damaged or dirty									(Oncie One)	
g	┼—	├								
69 kV 299 Disconnect Switch	1	1	RATING:	0	1	2	3		(0)	
299 Disconnect switch is clearly labeled and grounded		Γ							(Circle One)	
299 Disconnect switches are fully closed & aligned										
Porcelain insulators & supports are not damaged or dirty							_			
69 kV Circuit Switcher										
Position indicator labeling and external position indicator			RATING:	0	1	2	3	4	(Circle One)	
displays the appropriate Open/Closed position										
Control door is clearly labeled "299 Circuit Switcher"		\neg								
Gas pressure is within limits for the current temperature	\neg									
The Remote/Local switch is in Remote										
Record the operations counter & update card	$\neg \uparrow$						_		+	
Cabinet lights work										
Cabinet heaters work below 60 deg F.									+	
Cabinet is free from contamination		$\neg \dagger$								
266 Switch & 13.2 kV Buss										
			RATING:	0	1	2	3	4	(Circle One)	
66 disconnect switch is clearly labeled and grounded										
66 disconnect switches are fully closed & aligned										
orcelain insulators & supports are not damaged or dirty	-									
52L VCB		L	RATING:	0	1	2				
ne porcelain bushings, buss supports, and switch posts are not amaged or dirty		Ţ	TOTALO,				3	4	(Circle One)	
isconnect switches are clearly labeled and grounded	\dashv		· · · · · · · · · · · · · · · · · · ·							
isconnect switches are fully closed & aligned	_									
ne cabinet door is clearly labeled "52L VCB"	-	-								
ne Emergency trip switch is labeled and painted red	_	\dashv								
ne indicator displays the correct Open/Closed position	_	-						*		
ne yellow indicator is in the Charged position	\dashv	-							 	
ecord the operations counter & update card	$\neg +$	\top							 	
binet heaters work below 60 deg F.		\dashv	· · · · · · · · · · · · · · · · · · ·						-	
binet is free from contamination	\neg	\neg								
e LCD windows display the following:		_								
DPU status is green		\neg								
Pickup LED is NOT lit									 	
Recloser disable LED is lit		T	· · · · · · · · · · · · · · · · · · ·						+	
Record any target information									 	
									 	
Yard & Fence			RATING:	0	1	2	3	4	(Circle One)	
o west flood lights operate by switch in control house							-			
o east flood lights operate by switch on each pole	\bot								 	
e extinguisher is mounted on the fence and charged		\perp							 	
fence is secure from unathorized entry									 	
fence ground connections are intact	_								†	
structural steel is free of bird and insect nests										
base and grade is free of vegetation and water	_ _								 	
ming signs are properly mounted on the fence									 	

	Good	Bad X		CO	MME	NTS			DATE CORRECTED	CORRECTE
C134 VCB			RATING:	0	1	2	3	4	(Circle One)	BY
The porcelain bushings, buss supports, and switch posts are no damaged or dirty	ot								(Oncie One)	
Disconnect switches are clearly labeled and grounded	+	+								
Disconnect switches are fully closed & aligned	╁									
VCB By-pass switches are open, labeled & aligned	+-	┼╌┤								
The cabinet door is clearly labeled "C134 VCB"	+-	\vdash								
The Emergency trip switch is labeled and painted red	+	╀╌┤								
The indicator displays the correct Open/Closed position	+	\vdash								
The yellow indicator is in the Charged position	┼──	\vdash								
Record the operations counter & update card	┼	-+								
Cabinet heaters work below 60 deg F.	+	╀╌┼								
The LCD windows display the following:	 	┝─┼								
DPU status is green	 	╁┷┼								
Pickup LED is NOT lit	_	-								
Recloser disabled LED is NOT lit	├	-+								
Record any target information		-								
and any tanget information	-					····.				
C135 VCB			RATING:							
he porcelain bushings, buss supports, and switch posts are not	1		RATING:	0	1	2	3	4	(Circle One)	
amaged or dirty										
isconnect switches are clearly labeled and grounded									 	
isconnect switches are fully closed & aligned										
CB By-pass switches are open, labeled & aligned									+	
he cabinet door is clearly labeled "C135 VCB"									+	
he Emergency trip switch is labeled and painted red			_		1				 	
he indicator displays the correct Open/Closed position									 	
ne yellow indicator is in the Charged position									 	
ecord the operations counter & update card									+	
abinet heaters work below 60 deg F.									 	
e LCD windows display the following:									 	
DPU status is green								·····	 	
Pickup LED is NOT lit									+	
Recloser disabled LED is NOT lit									 	
Record any target information									 	
									 	
C136 VCB			RATING:	0	1	2	3	4	(Circle One)	
e porcelain bushings, buss supports, and switch posts are not naged or dirty	T		-						T T	
sconnect switches are clearly labeled and grounded	-	_								
sconnect switches are fully closed & aligned		-	·							
B By-pass switches are open, labeled & aligned		\dashv								
e cabinet door is clearly labeled "C136 VCB"	-+									
Emergency trip switch is labeled and painted red										
indicator displays the correct Open/Closed position	- -	_								
yellow indicator is in the Charged position		-								
cord the operations counter & update card	-									
vinet heaters work below 60 deg F.		$-\vdash$								
LCD windows display the following:	-+									
DPU status is green	\dashv	\dashv								
Pickup LED is NOT lit	-+-	-								
Recloser disabled LED is NOT lit	_+	+								
Record any target information	-+-									
	- 1									
	-+	- -								
		1								

,	Good	Bad X		CO	MME	NTS			DATE CORRECTED	CORREC
Panel W1		<u></u>	RATING:	0	1	2	3	4	(Circle One)	BY
The Transformer Bank #2 INCON Position indicator displays the same position as the LTC indicator head		T							(Circle Offe)	
The 299 breaker control RED lamp is lit	├									
A-101 synchroscope stops near 12:00 when on	 	-								
The A-101 breaker control RED lamps are lit	<u> </u>	-								
The WHITE A-101 line indication lamp is lit	 	├								
The second state of the se	-	╁─┼								
Panel W2		<u> </u>	RATING:	0	1	2	3	4	(Circle One)	
Using the digital panel meter verify the 13.2 kV buss voltage is netween 124.0 - 126.0 volts									(Circle One)	
Note any annunciator alarms and acknowledge				-						
The Panalarm Annunciator RED power on panel is lit									_	
All WHITE panels light up when pressing "Lamp Test"										
All WHITE panels light up when pressing "TEST"		$\neg +$								
all WHITE panels go out when the ACK button is pressed		$\neg +$								
Confirm the Plant Operator received the following alarms:										
Sub major, Circuit lockout, Switching device,		-+								
Transformer major, LTC voltage limit, LTC lockout	$\neg \uparrow$	_			·					
he RED C134, C135, C136 lamps are lit									- -	
							·		+	
MPU Supv Panel			RATING:	0	1	2	3	4	(Circle One)	
he RED LED display read "ILEX"										
ne RED LED's D1, D2, & D4 are blinking										
										
Panel W5			RATING:	0	1	2	3	4	(Circle One)	
ne "Protection in Service" LED is lit on the A-10121 PC REL 2 Relay									T T	
N" LED is lit on the A-101 21B/50BF SEL 221F-3 relay			· · · · · · · · · · · · · · · · · · ·						++	
N" LED is lit on the SECT 2 87/5152 SEL 387 relay										
ecord any target information										
Battery			RATING:							
Cammeter reads about 5 amns			MATING.		1	<u> </u>	<u> </u>	4	(Circle One)	
voltmeter on the charger measures 60 volts with the GRD	\dashv									
ST switch in + position voltmeter on the charger measures 60 volts with the GRD	- 1								1	
and the GRD I	_			_						
ST switch in - position									1	
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level		-								-
ST switch in - position puid level in cells 1 - 58 is between LOW & HIGH level ill bottle with a current expiration date is available										
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level uill bottle with a current expiration date is available the shield and specific gravity tester is available										
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level iull bottle with a current expiration date is available ee shield and specific gravity tester is available recific gravity in the test cell is 1.200 after corrected										
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level iull bottle with a current expiration date is available se shield and specific gravity tester is available ceific gravity in the test cell is 1.200 after corrected sign of electrolyte leaks from the cells										
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level iull bottle with a current expiration date is available ee shield and specific gravity tester is available ceffic gravity in the test cell is 1.200 after corrected sign of electrolyte leaks from the cells sign of corrosion on the intercell straps										
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level iull bottle with a current expiration date is available se shield and specific gravity tester is available ceific gravity in the test cell is 1.200 after corrected sign of electrolyte leaks from the cells										
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level iull bottle with a current expiration date is available se shield and specific gravity tester is available scific gravity in the test cell is 1.200 after corrected sign of electrolyte leaks from the cells sign of corrosion on the intercell straps at voltage on the charger and measured from the battery										
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level iull bottle with a current expiration date is available se shield and specific gravity tester is available scific gravity in the test cell is 1.200 after corrected sign of electrolyte leaks from the cells sign of corrosion on the intercell straps at voltage on the charger and measured from the battery										
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level iull bottle with a current expiration date is available se shield and specific gravity tester is available scific gravity in the test cell is 1.200 after corrected sign of electrolyte leaks from the cells sign of corrosion on the intercell straps at voltage on the charger and measured from the battery										
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level iull bottle with a current expiration date is available se shield and specific gravity tester is available scific gravity in the test cell is 1.200 after corrected sign of electrolyte leaks from the cells sign of corrosion on the intercell straps at voltage on the charger and measured from the battery										
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level iull bottle with a current expiration date is available se shield and specific gravity tester is available scific gravity in the test cell is 1.200 after corrected sign of electrolyte leaks from the cells sign of corrosion on the intercell straps at voltage on the charger and measured from the battery										
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level iull bottle with a current expiration date is available se shield and specific gravity tester is available scific gravity in the test cell is 1.200 after corrected sign of electrolyte leaks from the cells sign of corrosion on the intercell straps at voltage on the charger and measured from the battery										
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level iull bottle with a current expiration date is available se shield and specific gravity tester is available scific gravity in the test cell is 1.200 after corrected sign of electrolyte leaks from the cells sign of corrosion on the intercell straps at voltage on the charger and measured from the battery										
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level iull bottle with a current expiration date is available se shield and specific gravity tester is available scific gravity in the test cell is 1.200 after corrected sign of electrolyte leaks from the cells sign of corrosion on the intercell straps at voltage on the charger and measured from the battery										
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level iull bottle with a current expiration date is available se shield and specific gravity tester is available scific gravity in the test cell is 1.200 after corrected sign of electrolyte leaks from the cells sign of corrosion on the intercell straps at voltage on the charger and measured from the battery										
ST switch in - position uid level in cells 1 - 58 is between LOW & HIGH level uil bottle with a current expiration date is available se shield and specific gravity tester is available recific gravity in the test cell is 1.200 after corrected sign of electrolyte leaks from the cells sign of corrosion on the intercell straps at voltage on the charger and measured from the battery										

	Good	Bad X		CO	MME	DATE CORRECTED	CORRECTED			
Control House / General The wall clock displays the proper time			RATING:	0	1	2	3	4	(Circle One)	
The wall clock displays the proper time									(Silvic Offe)	
The AC load center breakers do not display trip flags										
The room temperature is between 60 - 80 degrees F.									ļ	
NO sign of rodent infestation										
Emergency Contact Directory present & phone dialtone										
Empty waste bin and sweep as required									 	
Place entry in log book and notify plant operator	1-1		· · · · · · · · · · · · · · · · · · ·							

Other:	

Operation Counts

Device	Previous	Present	Number of Operations	i
			portations	
A-101 GCB				ĺ
299 Circuit Switcher				
52L Breaker		 		
C134 Breaker	•			
C135 Breaker				
C136 Breaker		 		
Trans. Bank #2 LTC		<u> </u>		
Trans. Bank #2 Tank Pressure		PSIG		
Trans. Bank #2 Winding Temp		Degree C spot		D 63.5
Trans. Bank #2 Liquid Temp		Degree C spot		Degree C Max
Trans. Bank #2 Tank Oil Level Trans. Bank #2 LTC Oil Level	Low Low	25C 25C	HIGH HIGH	Degree C Max
Trans. Bank #2 LTC Limits:		Maximum Spot		
-		Minimum		

Specific Gravity Tests

- #1. Read the temperature corrrection factor off the thermometer (0.001 for each 3 deg. Difference from 77 deg. F)
- #2. Draw a liquid sample with the syringe and read the specific gravity off the float.
- #3. Subtract any negative correction from the third decimal of the specific gravity reading (for example: with a -4 correction at 65 deg F and a specific gravity of 1.213, the corrected specific gravity is 1.209)
- #4. If the temperature is above 77 deg F, the correction factor must be added to the specific gravity (for example: with a +4 correction at 89 deg. F and a specific gravity of 1.213, the corrected specific gravity is 1.217)

To Record LTC Operation Count

- #1. Press the "ENTER" key on the M-2001 relay in the LTC control cabinet
- #2. Press the "UP ARROW" thirteen (13) times
- #3. Record the value on the card in the cabinet and on the inspection report
- #4. Press the "UP ARROW" until LCD display says "EXIT"
- #5. Press the "ENTER" key to turn off the LCD display

Route: Dick Blashka

Kevin Carr

Kim Hackelberg (file)

Rating Criteria: 0 - Perfect Condition

- 1 Good Condition, but aging
- 2 Non-critical maintenance needed (normally repair within 12 months)
- 3 Priority maintenance needed (normally repair within 90 days)
- 4 Urgent maintenance needed (report immediately and repair within 1 week)

MPU Revere	Su	bsta	ition - N	lon	thi	v In		ecti	on Forn	
INSPECTED BY:			 			,	<u> </u>		011 1 0111	<u> </u>
DATE:										
TEMPERATURE:										
TEM EIGHOIL.										
	Τ.	1.,								
	Good	Bad		COM	MEN	ITS			DATE	CORRECTE
C-103 69 kV Oil Circuit Breaker	1	1 7	DATING						CORRECTED	BY
		T	RATING	: 0	_1 	2	3	4	(Circle One)
Emergency trip switch is labeled and painted red Control door is clearly labeled C-103 OCB	 	1	······································						T	T -
Position indicator displays the "Closed" position	┼									1
Charged/Discharged flag is clearly visible		├ ─-├								
Emergency trip reset "69" switch is labeled & reset	 	 								
Cabinet light works	-									
Cabinet heater works below 60 deg F.	 	\vdash								<u> </u>
Cabinet is free from contamination	ļ									
Bushing and arrestor porcelain is not damaged or dirty	├									
Red oil gauge on top is visible halfway up the glass	├	-				·				
Bushing oil is halfway up the sight glass										
No leaks from main tank or valves	 									
Record operation counter and update card	-	 								
ower resistor in the C-103 line pot fuse cabinet is warm	-				 -					
oltage between KLVO & KLVI in the line pot fuse cabinet is	_	- -								
etween 108 & 140 volts										
2-103 OCB Line Side disconnect switch is clearly labeled									 	
2-103 OCB Line Side disconnect switch is grounded 2-103 OCB Line side disconnect switches are fully closed and									 	
roperly aligned										
-103 OCB Bus Side disconnect switch is clearly labeled										
-103 OCB Bus Side disconnect switch is grounded									 	
-103 OCB Bus side disconnect switches are fully closed and roperly aligned	$\neg \dashv$									
ompressor ran less than 2 hours per month										
ir pressure is between 140 & 160 psi										
- Procedure 12 Decreece 140 & 100 psi										
B-102 69 kV Oil Circuit Breaker			RATING:	0	1	2	3	4	(Circle One)	
nergency trip switch is labeled and painted red	Т						<u> </u>		(Circle One)	
ontrol door is clearly labeled B-102 OCB	\dashv									
sition indicator displays the "Closed" position			-						 	
narged/Discharged flag is clearly visible	\neg									
nergency trip reset "69" switch is labeled & reset									 	
binet light works		_		 -						
binet heater works below 60 deg F.									_	
binet is free from contamination										 _
shing and arrestor porcelain is not damaged or dirty								 .		
d oil gauge on top is visible halfway up the glass										· · · · · · · · · · · · · · · · · · ·
shing oil is halfway up the sight glass										
leaks from main tank or valves	$\neg \uparrow$							 -		
cord operation counter and update card	\neg					 -			 	<u> </u>
wer resistor in the B-102 line pot fuse cabinet is warm	一十					,			 	
tage between JLVO & JLVI in the line pot fuse cabinet is ween 108 & 140 volts	T									

B-102 69 kV Oil Circuit Breaker, Cont.	Good	Bad X			MME	NTS			DATE CORRECTED	CORRECTI BY
			RATING:	0	1	2	3	4	(Circle One)	
B-102 OCB Line Side disconnect switch is grounded										
B-102 OCB Line Side disconnect switch is clearly labeled										
B-102 OCB Line Side disconnect switch is grounded B-102 OCB Line side disconnect switches are fully closed and	<u> </u>									
properly aligned										
B-102 OCB Bus Side disconnect switch is clearly labeled										
B-102 OCB Bus Side disconnect switch is grounded										
B-102 OCB Bus side disconnect switches are fully closed and properly aligned						·				
Hydraulic pump ran less than 2 hours per month	-									
Hydraulic pressure gauge is between 1800 & 2100 psi			 							
tu ieu a ziou par	-									
D-104 69 kV Oil Circuit Breaker			RATING:	0	1	2	3	4	(Circle One)	
Emergency trip switch is labeled and painted red									(3.1010 0110)	
Control door is clearly labeled D-104 OCB										
Position indicator displays the "Closed" position									+	
Charged/Discharged flag is clearly visible					·				+	
Emergency trip reset "69" switch is labeled & reset										
Cabinet light works										
Cabinet heater works below 60 deg F.									 	
Cabinet is free from contamination										
dushing and arrestor porcelain is not damaged or dirty										
led oil gauge on top is visible halfway up the glass to leaks from main tank or valves										
ecord operation counter and update card		-							T	
ower resistor in the D-104 line pot fuse cabinet is warm										
oltage between MLVO & MLV1 in the line pot fuse cabinet between 108 & 140 volts	_	\dashv								
-104 OCB Line Side disconnect switch is clearly labeled	\dashv	_								
-104 OCB Line Side disconnect switch is grounded -104 OCB Line side disconnect switches are fully closed and operly aligned		#								
104 OCB Bus Side disconnect switch is clearly labeled		$-\!$							1 1	
-104 OCB Bus Side disconnect switch is clearly labeled		-								
104 OCB Bus side disconnect switches are fully closed and	-	-								
operly aligned										
69 kV Capacitor Bank		_L	RATING:		1	2	3			
spect all 30 units for leaks or bulges	-1-		1011110.		·		<u>ა</u>	4	(Circle One)	
spect all units for tank cracks or flashovers										
shings and insulators are not damaged or dirty	+	\dashv								
blown fuses	+	+								
RAME ENERGIZED" Warning is clearly visible	\top	┰┼╌								
me is clear of bird or insect nests	\neg	_	-						 	
ring panel is free from contamination	\neg	_							 	
	\top								+	
221 Breaker			RATING: ()	1 ;	2	3	4	(Circle One)	
Emergency trip switch is labeled and painted red									1 1 1 1 1 1 1	
control door is clearly labeled 221 GCB		$\neg \vdash$							 	
position indicator displays the "Closed" position									 	
gas pressure is within limits for current temperature									 	
Charged/Discharged flag is clearly visible									 	
emergency trip reset "69" switch is labeled & reset									 	
cabinet light works	4_	\perp							 	
cabinet heater works below 60 deg F. inet is free from contamination	\perp								 	
THAT IS TRAG FROM A AND	_ I	1								
hing and arrestor porcelain is not damaged or dirty	_								T	

224 Diagram 4 2		Rad X		CC	OMMI	ENTS			DATE CORRECTED	CORRECTE BY
221 Disconnect Switch			RATING	: 0	1	2	3	4	(Circle One)	
221 Disconnect switch is clearly labeled and grounded										
221 Disconnect switches are fully closed & aligned						·			- 	
Porcelain insulators & supports are not damaged or dirty										
69 kV Buss & PT	<u> </u>		RATING	0	1	2	3	4	(Circle One)	
Oil level is primary bushings are between High & Low marks		T							(Oncie One)	
Bushings and insulators are not damaged or dirty		\neg								
Voltage between fuses & ground in 69 kV bus pot fuse box is between 62 & 76 volts										
Serveen 62 to Volts										
399 Circuit Switcher	<u> </u>		RATING:	0	1	2	3	4	(Circle One)	
Position indicator displays proper OPEN/CLOSED position		T							(Oncie One)	
No red target in the interrupter open sight window at north		┥—								
erminal end of each interrupter Sight window on side of brain housing has no "low pressure"										
arget displayed										
Operator is locked in coupled position		+								
Cabinet heater is warm below 60 deg F		┥								
Jpdate counter card		+-								
Cabinet and vents are free of contamination	_	+-								
										
499 Circuit Switcher			RATING:	0	1	2	3	4	(Circle One)	
osition indicator displays proper OPEN/CLOSED position							•	·		
o red target in the interrupter open sight window at north		+								
ight window on side of brain housing has no "low pressure"										
rget displayed		1								
perator is locked in coupled position										
abinet heater is warm below 60 deg F										
pdate counter card		1								
abinet and vents are free of contamination		†								
T										
Transformer Bank #3 Main Tank			RATING:	0	1	2	3	4	(Circle One)	
unk oil level is halfway between high and low marks									T	 -
ishing and arrestor porcelain is not damaged or dirty										
ank pressure is between 1 & 4 pounds positive								 -		
o oil leaks from main tank, radiators, valves									 	
ooling fans work when placed in manual									 	
cord temperature gauge peaks and reset hands										
diator temperature increases from bottom to top									 	
shing oil level is halfway up sight glass									+	
per cooling fans run if temp gauge is above lowest contact									+	
wer cooling fans run if temp gauge is above second contact									+	
Transfermer Barrie #0 LTG										
Transformer Bank #3 LTC			RATING:	0	1	2	3	4	(Circle One)	
level is halfway between high and low marks		<u> </u>								
cord temperature drag hand positions and reset		ļ								
cord LTC operation counter & update card										
cord LTC position peaks and reset										
binet heater works below 60 deg F. kwith LTC backup control Block Raise/Lower lamps			, , , , , , , , , , , , , , , , , , ,							
olay dim rather than bright "LED on the M-2001 tap changer control is lit	-							_		
N AND ON THE IVE / HUI tan changer control is 1:4										

T	Good X			co	MME	NTS		_	DATE CORRECTED	CORRECTED
Transformer Bank #3 LTC, Cont.			RATING:	0	1	2	3	4	(Circle One)	
No signs of cabinet contamination										
LTC tank pressure between 1&4 pounds positive Confirm integrity of the LTC vacuum bottles using the LTC										
test procedure										
LTC door is clearly labeled	_	1								
	1									
366 MOD & 13.2 kV Buss			RATING:	0	1	2	3	4	(Circle One)	
Motor operator displays proper OPEN/CLOSED position										
Operator is locked in coupled position									- 	
Cabinet heater is warm below 60 deg F										
Update operations counter card										
Section 3 fused disc bus PT 13.8 kV fuse links are intact										
Cabinet and vents are free of contamination										
Transformer Bank #4 Main Tank			RATING:	0	1	2	3	4	(Circle One)	
Tank oil level is halfway between high and low marks									T	
Bushing and arrestor porcelain is not damaged or dirty										
Tank pressure is between 1 & 4 pounds positive										
No oil leaks from main tank, radiators, valves										
Cooling fans work when placed in manual	ļ						-			
Record temperature gauge peaks and reset hands										
Radiator temperature increases from bottom to top										
Bushing oil level is halfway up sight glass										
Upper cooling fans run if temp gauge is above lowest contact										
Lower cooling fans run if temp gauge is above second contact										
Transformer Bank #4 LTC			RATING:	0	1	2	3	4	(Circle One)	
Dil level is halfway between high and low marks										
Record temperature drag hand positions and reset							-	 	 	
Cabinet light works										
decord LTC operation counter & update card										
Accord LTC position peaks and reset										
abinet heater works below 60 deg F. eckwith LTC backup control Block Raise/Lower lamps									 	
isplay dim rather than bright									 	
OK" LED on the M-2001 tap changer control is lit										
o signs of cabinet contamination									1	
	- 1									
TC tank pressure between 1&4 pounds positive	-									
onfirm integrity of the LTC vacuum bottles using the LTC										
onfirm integrity of the LTC vacuum bottles using the LTC st procedure										
onfirm integrity of the LTC vacuum bottles using the LTC										
onfirm integrity of the LTC vacuum bottles using the LTC st procedure			RATING:	0	1	2	3	4	(Cirolo One)	
onfirm integrity of the LTC vacuum bottles using the LTC st procedure TC door is clearly labeled 466 MOD & 13.2 kV Buss			RATING:	0	1	2	3	4	(Circle One)	
onfirm integrity of the LTC vacuum bottles using the LTC st procedure TC door is clearly labeled 466 MOD & 13.2 kV Buss (otor operator displays proper OPEN/CLOSED position			RATING:	0	1	2	3	4	(Circle One)	
onfirm integrity of the LTC vacuum bottles using the LTC st procedure TC door is clearly labeled 466 MOD & 13.2 kV Buss otor operator displays proper OPEN/CLOSED position perator is locked in coupled position			RATING:	0	1	2	3	4	(Circle One)	
onfirm integrity of the LTC vacuum bottles using the LTC st procedure TC door is clearly labeled 466 MOD & 13.2 kV Buss (otor operator displays proper OPEN/CLOSED position			RATING:	0	1	2	3	4	(Circle One)	
onfirm integrity of the LTC vacuum bottles using the LTC st procedure TC door is clearly labeled 466 MOD & 13.2 kV Buss fotor operator displays proper OPEN/CLOSED position perator is locked in coupled position abinet heater is warm below 60 deg F			RATING:	0	1	2	3	4	(Circle One)	
onfirm integrity of the LTC vacuum bottles using the LTC st procedure TC door is clearly labeled 466 MOD & 13.2 kV Buss Notor operator displays proper OPEN/CLOSED position perator is locked in coupled position abinet heater is warm below 60 deg F podate operations counter card			RATING:	0	1	2	3	4	(Circle One)	
onfirm integrity of the LTC vacuum bottles using the LTC st procedure TC door is clearly labeled 466 MOD & 13.2 kV Buss otor operator displays proper OPEN/CLOSED position perator is locked in coupled position abinet heater is warm below 60 deg F podate operations counter card ction 3 fused disc bus PT 13.8 kV fuse links are intact			RATING:	0	1	2	3	4	(Circle One)	
onfirm integrity of the LTC vacuum bottles using the LTC st procedure TC door is clearly labeled 466 MOD & 13.2 kV Buss otor operator displays proper OPEN/CLOSED position perator is locked in coupled position abinet heater is warm below 60 deg F podate operations counter card ction 3 fused disc bus PT 13.8 kV fuse links are intact			RATING:	0	1	2	3	4	(Circle One)	
onfirm integrity of the LTC vacuum bottles using the LTC st procedure TC door is clearly labeled 466 MOD & 13.2 kV Buss otor operator displays proper OPEN/CLOSED position perator is locked in coupled position abinet heater is warm below 60 deg F podate operations counter card ction 3 fused disc bus PT 13.8 kV fuse links are intact			RATING:	0	1	2	3	4	(Circle One)	
onfirm integrity of the LTC vacuum bottles using the LTC st procedure TC door is clearly labeled 466 MOD & 13.2 kV Buss otor operator displays proper OPEN/CLOSED position perator is locked in coupled position abinet heater is warm below 60 deg F podate operations counter card ction 3 fused disc bus PT 13.8 kV fuse links are intact			RATING:	0	1	2	3	4	(Circle One)	

Bus and	X	X		CON	MME	NTS			DATE CORRECTED	CORRECTE BY
R131 OCB Feeder			RATING:	0	1	2	3	4	(Circle One)	
Emergency trip switch is labeled and painted red									()	
Control door is clearly labeled R131 OCB										
Position indicator displays the "Closed" position										
Charged/Discharged flag is clearly visible										
Emergency trip reset "69" switch is labeled & reset										
Cabinet light works									+	
Cabinet heater works below 60 deg F.				-						
Cabinet is free from contamination										
Bushing and arrestor porcelain is not damaged or dirty			-						- 	
Bushing oil is halfway up the sight glass										
No leaks from main tank or valves				-					+	
Record operation counter and update card									+	
Oil is visible in sight glass on back of tank										
Disconnect switches are fully closed									+	
Cable riser terminators DO NOT leak fluid									 	
R132 OCB Feeder										
	Т - т		RATING:	0	1	2	3	4	(Circle One)	
Emergency trip switch is labeled and painted red Control door is clearly labeled R132 OCB										
osition indicator displays the "Closed" position										
Charged/Discharged flag is clearly visible	+									
mergency trip reset "69" switch is labeled & reset	+									
abinet light works	+									
abinet heater works below 60 deg F.		$-\!$								
abinet is free from contamination										
		——								
ushing and arrestor porcelain is not damaged or dirty ushing oil is halfway up the sight glass	+									
o leaks from main tank or valves	+		V							
ecord operation counter and update card	+									
il is visible in sight glass on back of tank								<u> </u>		
sconnect switches are fully closed	+									
able riser terminators DO NOT leak fluid										
R133 OCB Feeder			RATING:	0	1	2	3			
nergency trip switch is labeled and painted red		Т			<u></u>		-	4	(Circle One)	
entrol door is clearly labeled R133 OCB	 								 	
sition indicator displays the "Closed" position	1		· · · · · · · · · · · · · · · · · · ·							
arged/Discharged flag is clearly visible	1		 							
nergency trip reset "69" switch is labeled & reset	1									
binet light works	† †									
hingt hooten words but a CO I as	1	\dashv	· · · · · · · · · · · · · · · · · · ·						 	
omet heater works below 60 deg F.									 	
binet heater works below 60 deg F. binet is free from contamination									1	
binet is free from contamination			<u> </u>							
		-								
binet is free from contamination shing and arrestor porcelain is not damaged or dirty										
binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass										
binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass leaks from main tank or valves cord operation counter and update card is visible in sight glass on back of tank										
binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass leaks from main tank or valves cord operation counter and update card is visible in sight glass on back of tank connect switches are fully closed										
binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass leaks from main tank or valves cord operation counter and update card is visible in sight glass on back of tank										
binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass leaks from main tank or valves cord operation counter and update card is visible in sight glass on back of tank connect switches are fully closed										
binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass leaks from main tank or valves cord operation counter and update card is visible in sight glass on back of tank connect switches are fully closed										
binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass leaks from main tank or valves cord operation counter and update card is visible in sight glass on back of tank connect switches are fully closed										

4224.000	Good	Bad X		ОММЕ	ENTS			DATE CORRECTED	CORRECTE BY
1334 OCB			RATING: (1	2	3	4	(Circle One)	
Emergency trip switch is labeled and painted red									
Control door is clearly labeled 1334 OCB									
Position indicator displays the "Closed" position				-					
Charged/Discharged flag is clearly visible									
Emergency trip reset "69" switch is labeled & reset									
Cabinet light works								- 	
Cabinet heater works below 60 deg F.								+	
Cabinet is free from contamination									
Bushing and arrestor porcelain is not damaged or dirty								·	
Bushing oil is halfway up the sight glass									
No leaks from main tank or valves									
Record operation counter and update card		Ī							
Oil is visible in sight glass on back of tank								 	
Disconnect switches are fully closed								- 	
R134 OCB Feeder			B. 500						
			RATING: 0	1	2	3	4	(Circle One)	
Emergency trip switch is labeled and painted red Control door is clearly labeled R134 OCB	+								
osition indicator displays the "Closed" position	-+	-+							
harged/Discharged flag is clearly visible	+	-							
mergency trip reset "69" switch is labeled & reset									
abinet light works	-								
abinet heater works below 60 deg F.									
abinet is free from contamination	\dashv								
	-								
ushing and arrestor porcelain is not damaged or dirty ushing oil is halfway up the sight glass	+		- · <u> </u>						
o leaks from main tank or valves	+								
ecord operation counter and update card									
	+								
il is visible in sight glass on back of tank	+								
sconnect switches are fully closed	-								
able riser terminators DO NOT leak fluid	+								 -
R135 OCB Feeder			RATING: 0						
nergency trip switch is labeled and painted red	1	_	IXTING. U	1	2	3	4	(Circle One)	
entrol door is clearly labeled R135 OCB	+								
sition indicator displays the "Closed" position	+-+	- -						<u> </u>	
arged/Discharged flag is clearly visible	 	\dashv							
nergency trip reset "69" switch is labeled & reset	╅┈┼╌								
	+-+	-+-							
binet light works		- 1						<u> </u>	
	╁╼╁╸							I I	
binet heater works below 60 deg F.								ļ	
binet heater works below 60 deg F. binet is free from contamination									
binet heater works below 60 deg F.									
binet heater works below 60 deg F. binet is free from contamination shing and arrestor porcelain is not damaged or dirty							-		
binet heater works below 60 deg F. binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass leaks from main tank or valves									
binet heater works below 60 deg F. binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass leaks from main tank or valves cord operation counter and update card									
binet heater works below 60 deg F. binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass leaks from main tank or valves cord operation counter and update card is visible in sight glass on back of tank									
binet heater works below 60 deg F. binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass leaks from main tank or valves cord operation counter and update card									
binet heater works below 60 deg F. binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass leaks from main tank or valves cord operation counter and update card is visible in sight glass on back of tank connect switches are fully closed									
binet heater works below 60 deg F. binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass leaks from main tank or valves cord operation counter and update card is visible in sight glass on back of tank connect switches are fully closed									
binet heater works below 60 deg F. binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass leaks from main tank or valves cord operation counter and update card is visible in sight glass on back of tank connect switches are fully closed									
binet heater works below 60 deg F. binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass leaks from main tank or valves cord operation counter and update card is visible in sight glass on back of tank connect switches are fully closed									
binet heater works below 60 deg F. binet is free from contamination shing and arrestor porcelain is not damaged or dirty shing oil is halfway up the sight glass leaks from main tank or valves cord operation counter and update card is visible in sight glass on back of tank connect switches are fully closed									

•.	Good	Bad X		C	OMM	ENTS	5		DATE CORRECTED	CORRECT
R136 OCB Feeder		<u> </u>	RATIN	G: 0	1		3	4	(Circle One)	BY
Emergency trip switch is labeled and painted red		ПТ							(onoic one)	
Control door is clearly labeled R136 OCB										
Position indicator displays the "Closed" position										
Charged/Discharged flag is clearly visible	 									
Emergency trip reset "69" switch is labeled & reset	 									
Cabinet light works	 									
Cabinet heater works below 60 deg F.		 								
Cabinet is free from contamination										
Bushing and arrestor porcelain is not damaged or dirty										
Bushing oil is halfway up the sight glass										
No leaks from main tank or valves							 -			
Record operation counter and update card										
Oil is visible in sight glass on back of tank										
Disconnect switches are fully closed										
Cable riser terminators DO NOT leak fluid		_								
	$\neg \dagger$	_					 -			
Yard & Fence			RATING	i: 0	1	2	3	4	(Circle One)	
our flood lights operate when switch on NW light is on									(=::0:0 0::10)	
ire extinguisher is mounted on the fence and charged										
he fence is secure from unauthorized entry										
he fence ground connections are intact										
he structural steel is free of bird and insect nests	_									
te base and grade is free of vegetation and water	\dashv									
arning signs are properly mounted on the fence										
	-	_								
125 VDC Battery			RATING	: 0	1	2	3	4	(Circle One)	
C ammeter reads between 1 and 3 amps									(Oncie Offe)	
C voltmeter on the charger measures 60 volts with the GRD	\dashv		· · · · · · · · · · · · · · · · · · ·							
C voltmeter on the charger measures 60 volts with the GRD										
ST switch in - position		- 1								
quid level in cells 1 - 58 is between LOW & HIGH level	\dashv									
full bottle with a current expiration date is available		- -	· · · · · · · · · · · · · · · · · · ·							
ce shield and specific gravity tester is available	-+	\dashv								
ecific gravity in the test cell is 1.200 after corrected	-									
sign of electrolyte leaks from the cells										* * * *
o sign of corrosion on the intercell straps	-									
at voltage on the charger and measured from the battery			 							
k is 130.5 volts	ļ									
Panel A			RATING:	0	1	2	3	4	(Circle One)	
cord targets and reset	\neg	T	 						(Circle One)	
cord B-102 watt & vars from panel meters (panel 1)										
ng B-102 PWTS W test switch record pilot wire mA using	\dashv									
er scale with test switch handle pulled out	+						 .			
			RATING:	0	1	2	3			
Panel B				U	_'_		<u> </u>	4	(Circle One)	
Panel B ord targets and reset	7		IXTING.							
ord targets and reset	\perp		TATING.						- -	
Panel C			RATING:	0	1	2	3	4	(Circle One)	
Panel C				0	1	2	3	4	(Circle One)	
Panel C ord targets and reset ord D-104 watt & vars from panel meters (casel 1)				0	1	2	3	4	(Circle One)	
Panel C				0	1	2	3	4	(Circle One)	

٠,	Good	Bad X		CO	MME	NTS			DATE CORRECTED	CORRECT
Panel D, E, F			RATING:	0	1	2	3			BY
Record targets and reset				<u> </u>			<u>_</u> _	4	(Circle One)	
TCO knife switch for 1334 79 is open	-	┼─┤								
оры	 -									
SCADA Cabinet	J	<u> </u>	RATING:	0	1	2	3	4	(Circle One)	
'ILEX" is displayed on LED display			· · · · · · · · · · · · · · · · · · ·		-				(Oncie One)	
D1, D1, D4 LEDs flash sequentially										
Panel 4			DATING							
ecord targets and reset		—-	RATING:	0	1	2	3	4	(Circle One)	
ect 3 87S3 IND RL Red Lamp is lit		\dashv								
ect 3 86S3LOR/ER lockout relay is in "Black" reset position	L									
ect 4 87S4 IND RL Red Lamp is lit ect 4 86S4 LOR/ER lockout relay is in "Black" reset position										
occi 1 0004 Ecockout relay is in "Black" reset position										
Panel 3			RATING:	0	1	2	3	4	(0) 1 0	+
ecord targets and reset	T							4	(Circle One)	
ed Lamps are lit for the following:										
Bus 1 87B1 IND RL	$\neg +$	-+								
Sect 3 5153X IND RL	-+									
Sect 4 5154X IND RL	$\overline{}$	-+								
he following LOR/ER switches are in "Black" reset position		-+								
86B1, 5153X, 51S4X	士									
Panel 2		\dashv	RATING:	0	1	2	3	4	(0:1-0-)	
ll annunicator lamps light when press "Test" switch							- -	<u> </u>	(Circle One)	
ad Lamps are lit above the following switches 399 101 SW; 366 101 SW; FDR 131 101 SW;	#	_								
132 101 SW; 133 101 SW; 134 101 SW een Lamp above 1334 101 SW is lit		+						 .		
	_									
Panel 1			RATING:	0	1	2	3	4	(Circle One)	
CON indicators agree with position indicator heads on Bank & 4 LTCs									(oncle one)	
d Lamps are lit above the following switches		_						——		
499 101 SW; 466 101 SW; FDR 135 101 SW; FDR 136 101 SW; D-104 101 SW; C-103 101 SW; B-102 101 SW									 	
e following white line indicator lamps are lit:		$\neg \vdash$							+	
D-104, K-11, B-102										
Controlli										
Control House			RATING:	0	1	2	3	4	(Circle One)	
wall clock displays the proper time							 .		T	
AC load center breakers do not display trip flags									 	
room temperature is between 60 - 80 degrees F.									 	
sign of rodent infestation									 	
ergency Contact Directory present & phone dialtone									 	
pty waste bin and sweep as required				_					 	
e entry in log book and notify plant operator										

Other:	
· · · · · · · · · · · · · · · · · · ·	

Operation Counts

Device	Previous	Present	# of Operations
C-103 OCB			
B-102 OCB	•		
D-104 OCB			<u> </u>
399 SW		 -	
Trans Bank 3 LTC			
366 SW		 	
FDR 131 OCB		 	
FDR 132 OCB		1	
FDR 133 OCB			
1334 OCB			
499 SW			
Trans Bank 4 LTC			
466 SW	-		
FDR 134 OCB			
FDR 135 OCB		<u> </u>	
FDR 136 OCB			
221 GCB			
Trans. Bank #3 Tank Pressure		PSIG	
Trans. Bank #3 LTC Pressure		PSIG	
Trans. Bank #3 Winding Temp		Degrees C	
Trans. Bank #3 Liquid Temp		Degrees C	
Trans. Bank #3 Tank Oil Level	Low	25C	HIGH
Trans. Bank #3 LTC Oil Level	Low	25C	HIGH
Trans. Bank #4 Tank Pressure		PSIG	
Trans. Bank #4 LTC Pressure	* * *	PSIG	
Trans. Bank #4 Winding Temp	·····	Degrees C	
Trans. Bank #4 Liquid Temp		Degrees C	
Trans. Bank #4 Tank Oil Level	Low	25C	HIGH
Trans. Bank #4 LTC Oil Level	Low	25C	HIGH
			111011

MW
MV
mA
mA
mA
MW
MV
mA
mA
mA

- #1. Read the temperature correction factor off the thermometer (0.001 for each 3 deg. Difference from 77 deg. F)
- #2. Draw a liquid sample with the syringe and read the specific gravity off the float.
- #3. Subtract any negative correction from the third decimal of the specific gravity reading (for example: with a -4 correction at 65 deg F and a specific gravity of 1.213, the corrected specific gravity is 1.209)
- #4. If the temperature is above 77 deg F, the correction factor must be added to the specific gravity (for example: with a +4 correction at 89 deg. F and a specific gravity of 1.213, the corrected specific gravity is 1.217)

To Record LTC Operation Count

- #1. Press the "ENTER" key on the M-2001 relay in the LTC control cabinet
- #2. Press the "UP ARROW" thirteen (13) times
- #3. Record the value on the card in the cabinet and on the inspection report
- #4. Press the "UP ARROW" until LCD display says "EXIT"
- #5. Press the "ENTER" key to turn off the LCD display

LTC VACUUM BOTTLE INTEGRITY TESTS

- 1 Turn the LOCAL/REMOTE switch to LOCAL.
- 2 Turn the AUTO/MANUAL switch to MANUAL.
- 3 Hold the PROTECTION CIRCUIT TEST SW in the TEST position.
- 4 Hold the RAISE/LOWER switch in the RAISE position.
- 5 Confirm the LTC runs back to its original step.
- 6 Confirm that the FAULT indicator lamp lights.
- 7 Release the PROTECTION CIRCUIT TEST SW.
- 8 Release the RAISE/LOWER switch.
- 9 Press the RESET switch.
- 10 Confirm that the FAULT indicator lamp goes out.
- 11 Hold the PROTECTION CIRCUIT TEST SW in the TEST position.
- 12 Hold the RAISE/LOWER switch in the LOWER position.
- 13 Confirm that the LTC runs back to its original step.
- 14 Confirm that the FAULT indicator lamp lights.
- 15 Release the PROTECTION CIRCUIT TEST SW.
- 16 Release the RAISE/LOWER switch to off.
- 17 Press the RESET switch.
- 18 Confirm that the FAULT indicator lamp goes out.
- 19 Turn AUTO/MANUAL switch to AUTO.
- 20 Turn LOCAL/REMOTE switch to REMOTE.
- 21 Reset alarm in control house.
- 22 Confirm that the plant operator received a transformer major alarm.

Route: Dick Blashka Kevin Carr Kim Hackelberg (file)

Rating Criteria: 0 - Perfect Condition

1 - Good Condition, but aging

2 - Non-critical maintenance needed (normally repair within 12 months)

3 - Priority maintenance needed (normally repair within 90 days)

4 - Urgent maintenance needed (report immediately and repair within 1 week)

MPU Northeast	_				
DATE:					_
TEMPERATURE:					
TION ENVIORE.					
		_			
	Good	Bad	COMMENTS	DATE	CORRECTE
Transformer Bank #1 Main Tank	1.			CORRECTED	BY
		, ——,	RATING: 0 1 2 3 4	(Circle One)	
Bushing and arrestor porcelain is not damaged or dirty	<u> </u>			T	
Tank pressure is between 1 & 4 pounds positive	 			 	
No oil leaks from main tank, radiators, valves Cooling fans work when placed in manual	-			 	
				 	
Record temperature gauge peaks and reset hands	 			 	
Radiator temperature increases from bottom to top Bushing oil level is halfway up sight glass	$\vdash \dashv$			 	
Tank oil level is halfway up sight glass Tank oil level is halfway between high & low marks				 	
The state of the s					
Tronoform	<u> </u>				
Transformer Bank #1 LTC			RATING: 0 1 2 3 4	(Circle One)	
Oil level is halfway between high and low marks		T		(Oncie One)	
Record temperature drag hand positions and reset		$\neg \uparrow$			
Cabinet light works					
Record LTC operation counter & update card		$\neg \uparrow$			
ecord LTC position peaks and reset		$\neg \vdash$			
abinet heater works below 60 deg F.					
eckwith LTC backup control Block Raise/Lower lamps isplay dim rather than bright					
OK" LED on the M-2001 tap changer control is lit	+			Ĭ	
o signs of cabinet contamination					
TC tank pressure between 1.84 pounds positive	-	_			
onfirm integrity of the LTC vacuum bottles using the LTC					
st procedure		_L			
					
C-103 69 kV Oil Circuit Breaker			RATING: 0 1 2 3 4		
nergency trip switch is labeled and painted red	$\neg \top$	т-	RATING: 0 1 2 3 4	Circle One)	
ontrol door is clearly labeled C-103 OCB	\dashv	-+-			
sition indicator displays the "Closed" position	\dashv	$-\!\!\!\!+$			
arged/Discharged flag is clearly visible	-				
nergency trip reset "69" switch is labeled & reset	-	-+-			
binet light works	-+-	-+-			
binet heater works below 60 deg F.	_				
	\dashv	+-			
binet is free from contamination					
binet is free from contamination shing and arrestor porcelain is not damaged or dirty		1			
shing and arrestor porcelain is not damaged or dirty d oil gauge on top is visible halfway up the glass	1				i i
shing and arrestor porcelain is not damaged or dirty doil gauge on top is visible halfway up the glass shing oil is halfway up the sight glass	1	\downarrow			
shing and arrestor porcelain is not damaged or dirty d oil gauge on top is visible halfway up the glass shing oil is halfway up the sight glass leaks from main tank or valves		1			
shing and arrestor porcelain is not damaged or dirty d oil gauge on top is visible halfway up the glass shing oil is halfway up the sight glass leaks from main tank or valves ord operation counter and update card					
shing and arrestor porcelain is not damaged or dirty d oil gauge on top is visible halfway up the glass shing oil is halfway up the sight glass leaks from main tank or valves ord operation counter and update card ver resistor in the C-103 line pot fuse cabinet is warm					
shing and arrestor porcelain is not damaged or dirty d oil gauge on top is visible halfway up the glass shing oil is halfway up the sight glass leaks from main tank or valves ord operation counter and update card ver resistor in the C-103 line pot fuse cabinet is warm tage between CLVO & CLVI in the line pot fuse cabinet.					
shing and arrestor porcelain is not damaged or dirty d oil gauge on top is visible halfway up the glass shing oil is halfway up the sight glass leaks from main tank or valves ord operation counter and update card ver resistor in the C-103 line pot fuse cabinet is warm					

	Good X	Bad X		CO	MME	NTS			DATE CORRECTED	CORRECTE
C-103 69 kV Oil Circuit Breaker, Cont.			RATING:	0	1	2	3	4	(Circle One)	
C-103 OCB Line Side disconnect switches are fully closed and properly aligned			··		-					
C-103 OCB Buss Side disconnect switch is clearly labeled		_								
C-103 OCB Buss Side disconnect switch is grounded							··			
C-103 OCB Buss Side disconnect switches are fully closed and properly aligned										
property angued			······································							
K11- 69 kV Oil Circuit Breaker	<u> </u>		RATING:	0	1	2	3	4	(Circle One)	
Emergency trip switch is labeled and painted red					·			-	<u> </u>	
Control door is clearly labeled K-11 OCB										
Position indicator displays the "Closed" position					*					
Charged/Discharged flag is clearly visible										
Emergency trip reset "69" switch is labeled & reset										
Cabinet light works										
Cabinet heater works below 60 deg F.										
Cabinet is free from contamination									 	
Bushing and arrestor porcelain is not damaged or dirty		T								
Red oil gauge on top is visible halfway up the glass				•						
Bushing oil is halfway up the sight glass							~			······································
No leaks from main tank or valves			······································						 	
Record operation counter and update card										·
Power resistor in the K-11 line pot fuse cabinet is warm										
Voltage between CLVO & CLV1 in the line pot fuse cabinet is between 108 & 140 volts				_						
K-11 OCB Line Side disconnect switch is clearly labeled							·			
K-11 OCB Line Side disconnect switch is grounded K-11 OCB Line Side disconnect switches are fully closed and properly aligned										
K-11 OCB Buss Side disconnect switch is clearly labeled										
K-11 OCB Buss Side disconnect switch is grounded			······································							~
K-11 OCB Buss Side disconnect switches are fully closed and properly aligned							-			
noperty aligned										
69 kV Buss and PT			RATING:	0	1					
Porcelain bushing, buss supports, and switch posts are not			RATING.		<u> </u>	2	3	4	(Circle One)	
lamaged or dirty								_	1 1	
Dil level in primary bushing is between High & Low oltages between fuses of ground in the 69 kV Bus Pot fuse										
oox are between 108 & 132 or 62 & 76 volts										
9 kV Bus Tie disconnect switch is clearly labeled		\neg								
9 kV Bus Tie disconnect switch is grounded		_								
9 kV Bus Tie disconnect switches are fully closed and										
roperly aligned										
		l				2	3	4	(Circle One)	-
69 kV 199 Disconnect Switch			RATING:	0	1	Z	J	-		
69 kV 199 Disconnect Switch 99 Disconnect switch is clearly labeled and grounded			RATING:		<u> </u>				`	
99 Disconnect switch is clearly labeled and grounded			RATING:							
			RATING:		1 					
99 Disconnect switch is clearly labeled and grounded 99 Disconnect switches are fully closed & aligned			RATING:	<u> </u>	1					
99 Disconnect switch is clearly labeled and grounded 99 Disconnect switches are fully closed & aligned			RATING:	0	1					
99 Disconnect switch is clearly labeled and grounded 99 Disconnect switches are fully closed & aligned			RATING:	0	1					
99 Disconnect switch is clearly labeled and grounded 99 Disconnect switches are fully closed & aligned			RATING:	0	1					
99 Disconnect switch is clearly labeled and grounded 99 Disconnect switches are fully closed & aligned			RATING:		1	2				
99 Disconnect switch is clearly labeled and grounded 99 Disconnect switches are fully closed & aligned			RATING:		1	2				
99 Disconnect switch is clearly labeled and grounded 99 Disconnect switches are fully closed & aligned			RATING:	0	1					
99 Disconnect switch is clearly labeled and grounded 99 Disconnect switches are fully closed & aligned			RATING:	0	1					
99 Disconnect switch is clearly labeled and grounded 99 Disconnect switches are fully closed & aligned			RATING:		1					

2011/0	Good	Bad X	C	OM	1ME	NTS			DATE CORRECTED	CORRECTE BY
69 kV Circuit Switcher			RATING:)	1	2	3	4	(Circle One)	
Position indicator labeling and external position indicator displays the appropriate OPEN/CLOSED position										
Control door is clearly labeled "199 Circuit Switcher"	+	 	:							
The Remote/Local switch is in REMOTE	 -									
Record operations counter and update card	†	_								
Cabinet heaters work										
Cabinet is free from contamination UPPER end of interrupters do not display a "Lower Pressure" red target										
Manual trip lever is clearly labeled	-									
Yellow "Charged" flag is clearly visible										· · · · · · · · · · · · · · · · · · ·
Louvers and Vents are free of dust and debris	-									
STORY CLEANING GEORGE	 									
166 Switch & 13.2 kV Buss			RATING: 0	-	1	2	3	4	(Circle One)	
166 disconnect switch is clearly labeled and grounded	Т	$\neg \neg$	-							
166 disconnect switches are fully closed & aligned										
Porcelain insulators & supports are not damaged or dirty		一								
										
Reclosers & Feeder Cables			RATING: 0		1	2	3	4	(Circle One)	
'Red" indicator flag & "Yellow" handle are in up position										
Silver Ball is halfway up oil sight window										
Cable riser terminators are not leaking fluid										
Porcelain insulators & bushings are not damaged or dirty		_					*			
Disconnect switches are fully closed and properly aligned										
Yard & Fence			RATING: 0		1	2	3	4	(Circle One)	
our flood lights operate when the breakers in the Control		\neg		_					7	· · · · · · · · · · · · · · · · · · ·
ire extinguisher is mounted on the fence and charged				_						
he fence is secure from unauthorized entry		-+								
he fence ground connections are intact		\dashv								
he structural steel is free of bird and insect nests										
ite base and grade is free of vegetation and water										
/arning signs are properly mounted on the fence		\dashv								
The part of the fence		\dashv								
N132 Control Cabinet			RATING: 0		1	2	3	4	(Circle One)	
attery current between -10.0 and -16.0 mA			·						7	
attery voltage between 27 and 29 volts attery voltage drops less than 3 volts when test button is									 	
essed									 	
ontrol date and time accurate (codes 154, 155)	$\neg \vdash$	+								
odate counter card (code 39)			· · · · · · · · · · · · · · · · · · ·							
ater phase and ground courts on card (codes 32-35)										
e LCD windows display the following:		-+							 	
Check battery is CLEAR	_	一							 	
AC supply is ACTIVE		_					 -		 	······································
Malfunction is CLEAR	_	$\neg \vdash$							 -	
Current above min trip is CLEAR									 	
Closed is ACTIVE									 	
Open is CLEAR									 -	
									 	
		_1							 	
									 	
		\top							 	
										

Good Bad X X			CO	MME	NTS			DATE CORRECTED	CORRECTED BY	
N133 Control Cabinet			RATING:	0	1	2	3	4	(Circle One)	······································
Battery current between -10.0 and -16.0 mA		Ĭ								
Battery voltage between 27 and 29 volts										
Battery voltage drops less than 3 volts when test button is pressed										· · · · · · · · · · · · · · · · · · ·
Control date and time accurate (codes 154, 155)										
Update counter card (code 39)										
Enter phase and ground courts on card (codes 32-35)										
The LCD windows display the following:										·
Check battery is CLEAR						-				· · · · · ·
AC supply is ACTIVE										
Malfunction is CLEAR										-
Current above min trip is CLEAR										-
Closed is ACTIVE				_						
Open is CLEAR										
Panel W1			RATING:	0	1	2	3	4	(Circle One)	
DTR lamp is lit on the RFL Relay Communication Switch CPU										
unit The +5v, +15v, and -15v green lamps are lit on the RFL Relay										 -
Communication Switch 125 DC volts unit										
K-11 50 BF RAICA breaker fail target is reset										
K-11 21P MDAR relay yellow "inservice" is lit										-
K-11 21B SEL-221F "Red" EN lamp is lit										
C-103 50 BF RAICA breaker fail target is reset										
C-103 21P MDAR relay yellow "in service" is lit										-
C-103 21B SEL-221F "Red" EN lamp is lit										
Panel W2	L		RATING:		1	2				
87S1 Section 1 RADSB Differential Relay target is reset			RATING.		1		3	4	(Circle One)	
86S1 Section 1 DC IND red lamp is lit	\vdash									
Section 1 86S1 LOR/ER lockout relay is "Black" reset pos Section 1 51S1 MMCO "Yellow" monitor lamp is lit										
	\vdash							·		
51S1XC Section 1 DC IND "Red" lamp is lit									!	.
Panel E5	<u></u>		RATING:	0	1	2	3	4	(Circle One)	
Processor Unit 1 DC Power & PC "Green" lamps are lit									`	
Processor Unit 1 CPU fault, Battery Low, & Forced I/O red			****							
lamps are NOT lit										
D154		1								
Panel E4			RATING:	0	1	2	3	4	(Circle One)	
Buss 1 A,B,C phase 87B1 SBD-11 buss differential relay target displays in Reset position								-		***************************************
"Red" Buss 1 86B1 DC IND lamp is lit										
Buss 1 86B1 LOR/ER lockout relay is in "Black" reset position										<u> </u>
			,				***			
Panel E2			RATING:	0	1	2	3	4	(Circle One)	
INCON position indicator matches the LTC indicator	Т								T	
The "Yellow" XFMR B1 Auto Indication lamp is lit			777.11.						 	
199 Breaker control "Red" lamp is lit									 	
"Red" FDR N132 lamp is lit									 	
"Red" FDR N133 lamp is lit					 -					······································
Using the digital panel meter verify the 13.2 kV bus voltage is between 111.5 & 114.5 volts							,			
	1	1				_				

•	Good	Bad X		CO	MME	NTS			DATE CORRECTED	CORRECTED BY
Panel E1			RATING:	0	1	2	3	4	(Circle One)	
Note any annunicator alarms & acknowledge										
Panalarm "Red" power on panel is lit										
All white panels light up when pressing "Lamp Test"										
All white panels light up when pressing "Test"										
All white panels go out when "ACK" is pressed										
Confirm the Plant Operator received the following alarms:										
Transformer major, Substation major, Feeder Lockout										
Substation Minor, Switching Device, PC Failure,										
Protective Device, LTC voltage limit										
Synchroscope stops new 12:00 when C-103 S.S. is on						·				
Synchroscope stops new 12:00 when K-11 S.S. is on										
C-103 white indicator light is lit										
K-11 white indicator light is lit										
C-103 25 CVX Synchro-verifier relay target is reset		1								
K-11 25 CVX Synchro-verifier relay target is reset										
				-						
Battery		<u> </u>	RATING:	0	1	2	3	4	(Circle One)	
The DC ammeter reads about 5 amps	1									
The DC voltmeter on the charger measures 60 volts with the										
GRD TEST switch in + position The DC voltmeter on the charger measures 60 volts with the	 	+ +								
GRD TEST switch in - position	l]								
The liquid level in cells 1 - 58 is between LOW & HIGH level										
A full bottle with a current expiration date is available										
The face shield and specific gravity tester is available										
The specific gravity in the test cell is 1.200 after corrected										
NO sign of electrolyte leaks from the cells										
NO sign of corrosion on the intercell straps										
The float voltage on the charger and measured from the battery		1 1								
rack is 130.5 volts	╁─┈	┼┼								-
	 	++								
Control House / General	!	<u></u>	RATING:	0	1	2	3	4	(Circle One))
	1	T								T
The wall clock displays the proper time	+	+								
The AC load center breakers do not display trip flags	+	╅┈┤								
The room temperature is between 60 - 80 degrees F.	┼	+								<u> </u>
NO sign of rodent infestation	+-	╁╌┤								
Emergency Contact Directory present & phone dialtone	1.	╂								
Empty waste bin and sweep as required	 	+								1
Place entry in log book and notify plant operator	1	1 1							1	

Other:					
		<u>-</u>			
Operation Counts					
			Previous	Present	of Operations
	***	C-103 OCB			
		K-11 OCB			
	199 Cir	rcuit Switcher			
		tions Counter		···-	
	N132 Target Count				
	N132 Target Counter PF				
	N132 Target Counter PF				
	N132 Target Counter PF				
		tions Counter			
	N133 Target Coun	ter GROUND			
	N133 Target Counter PF	IASE 1-2 "A"			
	N133 Target Counter PF				
	N133 Target Counter PF				
	Tran	s Bank 1 LTC			
	Trans. Bank #1 Tank Pressure		PSIG		
	Trans. Bank #1 Winding Temp		Degree C spot		Degree C Max
	Trans. Bank #1 Liquid Temp		Degree C spot		Degree C Max
	Trans. Bank #1 Tank Oil Level	Low	25C	HIGH	
	Trans. Bank #1 LTC Oil Level	Low	25C	HIGH	
	Trong Dank #1 LTC Limite:		Mavimum		

Specific Gravity Tests

- #1. Read the temperature correction factor off the thermometer (0.001 for each 3 deg. Difference from 77 deg. F)
- #2. Draw a liquid sample with the syringe and read the specific gravity off the float.
- #3. Subtract any negative correction from the third decimal of the specific gravity reading (for example: with a -4 correction at 65 deg F and a specific gravity of 1.213, the corrected specific gravity is 1.209)
- #4. If the temperature is above 77 deg F, the correction factor must be added to the specific gravity (for example: with a +4 correction at 89 deg. F and a specific gravity of 1.213, the corrected specific gravity is 1.217)

Spot Minimum

To Record LTC Operation Count

- #1. Press the "ENTER" key on the M-2001 relay in the LTC control cabinet
- #2. Press the "UP ARROW" thirteen (13) times
- #3. Record the value on the card in the cabinet and on the inspection report
- #4. Press the "UP ARROW" until LCD display says "EXIT"
- #5. Press the "ENTER" key to turn off the LCD display

LTC VACUUM BOTTLE INTEGRITY TESTS

- 1 Turn the LOCAL/REMOTE switch to LOCAL.
- 2 Turn the AUTO/MANUAL switch to MANUAL.
- 3 Hold the PROTECTION CIRCUIT TEST SW in the TEST position.
- 4 Hold the RAISE/LOWER switch in the RAISE position.
- 5 Confirm the LTC runs back to its original step.
- 6 Confirm that the FAULT indicator lamp lights.
- 7 Release the PROTECTION CIRCUIT TEST SW.
- 8 Release the RAISE/LOWER switch.
- 9 Press the RESET switch.
- 10 Confirm that the FAULT indicator lamp goes out.
- 11 Hold the PROTECTION CIRCUIT TEST SW in the TEST position.
- 12 Hold the RAISE/LOWER switch in the LOWER position.
- 13 Confirm that the LTC runs back to its original step.
- 14 Confirm that the FAULT indicator lamp lights.
- 15 Release the PROTECTION CIRCUIT TEST SW.
- 16 Release the RAISE/LOWER switch to off.
- 17 Press the RESET switch.
- 18 Confirm that the FAULT indicator lamp goes out.
- 19 Turn AUTO/MANUAL switch to AUTO.
- 20 Turn LOCAL/REMOTE switch to REMOTE.
- 21 Reset alarm in control house.
- 22 Confirm that the plant operator received a transformer major alarm.

Route: Dick Blashka Kevin Carr Kim Hackelberg (file) Rating Criteria: 0 - Perfect Condition

1 - Good Condition, but aging

- 2 Non-critical maintenance needed (normally repair within 12 months)
- 3 Priority maintenance needed (normally repair within 90 days)
- 4 Urgent maintenance needed (report immediately and repair within 1 week)

MPU Lakefront								-		
INSPECTED BY:										
DATE:										
TEMPERATURE:	_									
	Good	Bad X		CO	MMEN	NTS			DATE CORRECTED	CORRECTED BY
Plant Tie Transformer Main Tank			RATING:	0	1	2	3	4	(Circle One)	
Tank oil level is halfway between high and low marks										
Bushing and arrestor porcelain is not damaged or dirty										
Tank pressure is between 1 & 4 pounds positive				_					4	
No oil leaks from main tank, radiators, valves	$oxedsymbol{oxed}$			_						
Cooling fans work when placed in manual	oxdot									
Record temperature gauge peaks and reset hands				_						
Radiator temperature increases from bottom to top										<u> </u>
Bushing oil level is halfway up sight glass				_						
Control Power Breakers are ON				_						
Cooling fans on if winding temp greater than 80 deg F		口		_						<u> </u>
Oil pumps on if winding temp greater than 85 deg F				_						
	\bot									
Plant Tie Transformer LTC			RATING:	0	1	2	3	4	(Circle One)	1
Oil level is halfway between high and low marks	L									
Record temperature drag hand positions and reset	\bot									
Cabinet light works										
Record LTC operation counter & update card										
Record LTC position peaks and reset	匚									
Cabinet heater works below 60 deg F.	<u></u>									<u></u>
No signs of cabinet contamination	<u> </u>	\Box								
LTC tank pressure between 1&4 pounds positive	\perp	\Box								
		لَـــا								
69 kV Plant Tie OCB			RATING:	0	1	2	3	4	(Circle One)	1
Emergency trip switch is labeled and painted red	Γ									
Control door is clearly labeled Plant Tie OCB										
Position indicator displays the "Closed" position]-									
Charged/Discharged flag is clearly visible										
Emergency trip reset "69" switch is labeled & reset										
Cabinet light works	$\overline{\Gamma}$									
Cabinet heater works below 60 deg F.	\prod									
Cabinet is free from contamination				_						
Bushing and arrestor porcelain is not damaged or dirty	Γ									
Red oil gauge on top is visible halfway up the glass										
Bushing oil is halfway up the sight glass	\prod									
No leaks from main tank or valves	\prod									
Record operation counter and update card				_						
Plant Tie OCB Line Side disconnect switch is clearly labeled	I			_						
Plant Tie OCB Line Side disconnect switch is grounded	T									
Plant Tie OCB Line Side disconnect switches are fully closed	T									
and properly aligned	+	+					•			
Plant Tie OCB Bus Side disconnect switch is clearly labeled	+-	+							 	
Plant Tie OCB Bus Side disconnect switch is grounded	+-	+								+
	1		1						Ī	

89 KV Plant Tie OCB, Cont. Film Tie OCB Bis Side disconnect workfor are fully detected methypethy aligned mynethy aligned mynethypethypethypethypethypethypethypethyp	.,	Good	Bad X		CON	MEZ	TS			DATE CORRECTED	CORRECTED BY
send proposely aligned Finan Tie BYPASS DISCONNECT SWITCH is greated Finan to il sevel is balfowsy between high and low marks Bushing and arrestor porcelain is not damaged or dirty Ties greature is between 1.6 4 pounds positive No. all leals from main task, radiators, waves Cooling finan work when placed in manual Record temperature increases from bottom to top Bushing oil level is halfowsy up sight plass Cooling finan work when placed from too top Bushing oil level is halfowsy up sight plass Cooling finan oif winding temperature has 80 dag F Cooling finan oif winding temperature has 80 dag F Cooling finan oif winding temperature has 85 dag F Lection Relay and target in cabinet are in black reset position S & W Gen #5 OCB RATING: 0 1 2 3 4 (Circle One) Emergency trip switch is labeled and painted red Countred doors is clearly labeled (Son #5 OCB Emergency trip switch is labeled and painted red Countred doors is clearly labeled (Son #5 OCB Emergency trip reset "65" switch is labeled & reset Countred loors is clearly labeled (Son #5 OCB Radianter myorks below 60 dag F. Collinet is fire from contamination Banking and arrestor porcelain is not damaged or drity Red oil pauge on try is visible halfowy up the glass Banking and in archite or preclain is not damaged or drity Red oil pauge on top is visible halfowy up the glass Banking and in archite archite is grounded Con #5 OCD Line Side disconnect switch is grounded Con #5 OCD Line Side disconnect switch is grounded Con #5 OCD Line Side disconnect switch is grounded Con #5 OCD Line Side disconnect switch is grounded Con #5 OCD Line Side disconnect switch is grounded Con #5 OCD Line Side disconnect switch is grounded Con #5 OCD Line Side disconnect switch is prounded Con #5 OCD Line Side disconnect switch is prounded Con #5 OCD Line Side di	69 kV Plant Tie OCB, Cont.			RATING:	0	1	2	3	4	(Circle One)	
Fleet Tie BYNASS DISCONNICT SWITCH is created	- I										
Faint Tie BYPASS DISCONNECT SWITCHES are fully opened. Gen #5 Transformer Main Tank RATING: 0 1 2 3 4 (Circle One) Tank oil level is halfway between high and low marks Bashing and arrestor precedain is not damaged or diry Tank oil level is halfway between high and low marks Bashing and arrestor precedain is not damaged or diry Tank cent presents and present in the damaged or diry No oil leaks from main tank, radiators, valves Cooling flams work when placed in manual Record temperature increases from bottom to top Beshing oil level is halfway up sight glass Control Power Breakers are ON Cooling flams on if winding temp greater than 80 dag F Oli pumps on if winding temp greater than 85 dag F Lectour Relay and target in cabinet are in black reset position S9 kV Gen #5 OCB RATING: 0 1 2 3 4 (Circle One) Emergency trip switch is labeled and pasted red Control door is clearly labeled Gen 85 OCB Pension inflicator displays the "Closely Position Charged/Discharged flag is clearly visible Emergency trip reset? Of workth is labeled & reset Cabinet light works Cabinet laget works Red oil gauge on to is visible halfway up the glass Bashing and is arther of the substance of the plass Bashing and is arther of the substance of the plass Bashing and is arther of the substance of the plass Bashing and is arther of the substance of the plass Bashing and is arther of the substance of the plass Bashing and is arther of the substance of the plass Bashing and is arther of the substance of the plass Bashing and is arther of the substance of the plass Bashing and is arther of the substance of the plass Bashing and is arther of the substance are fully closed and properly aligned Con #5 DYPASS DISCONNECT SWITCH is grounded Con #5 DYPASS DISCONNECT SWITCH is grounded Con #5 DYPASS DISCONNECT SWITCH is grounded											
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14	Good	Bad X		CO	MME	NTS			DATE CORRECTED	CORRECTED BY
Grounding Transformer Main Tank			RATING:	0	1	2	3	4	(Circle One))
Tank oil level is halfway between high and low marks										
Bushing and arrestor porcelain is not damaged or dirty										
Tank pressure is between 1 & 4 pounds positive										
No oil leaks from main tank, radiators, valves										
Cooling fans work when placed in manual										
Record temperature gauge peaks and reset hands										
Radiator temperature increases from bottom to top										
Bushing oil level is halfway up sight glass										
Control Power Breakers are ON										
Lockout Relay and target in cabinet are in black reset position										
69 kV Grounding OCB	<u> </u>		RATING:	0	1	2	3	4	(Circle One)
Emergency trip switch is labeled and painted red										
Control door is clearly labeled Grounding OCB										ļ
Position indicator displays the "Closed" position										
Charged/Discharged flag is clearly visible										
Emergency trip reset "69" switch is labeled & reset										
Cabinet light works										
Cabinet heater works below 60 deg F.										
Cabinet is free from contamination										
Bushing and arrestor porcelain is not damaged or dirty						•				
Red oil gauge on top is visible halfway up the glass										
Bushing oil is halfway up the sight glass										
No leaks from main tank or valves										
Record operation counter and update card										
Grounding OCB Line Side disconnect switch is clearly labeled										
Grounding OCB Line Side disconnect switch is grounded										
Grounding OCB Line Side disconnect switches are fully closed	i									
and properly aligned	1									
Grounding OCB Bus Side disconnect switch is clearly labeled	+	├								
Grounding OCB Bus Side disconnect switch is grounded Grounding OCB Bus Side disconnect switches are fully closed	 	┼─				· · ·		-		
and properly aligned										
Grounding BYPASS DISCONNECT SWITCH is clearly label	e									
Grounding BYPASS DISCONNECT SWITCH is grounded	Ī	T								
Grounding BYPASS DISCONNECT SWITCHES are fully opened										
69 kV Transfer OCB			RATING:	0	1	2	3	4	(Circle One	<u> </u>)
Emergency trip switch is labeled and painted red	T	1							,	1
Control door is clearly labeled Transfer OCB	+	†								
Position indicator displays the "Closed" position	+-	+	 	•						***************************************
	+	╂				·				1
Charged/Discharged flag is clearly visible	+	+	 							
Emergency trip reset "69" switch is labeled & reset	+	1	 							1
Cabinet light works	+	+			·					1
Cabinet heater works below 60 deg F.	+	+								
Cabinet is free from contamination	+	+	+							+
Bushing and arrestor porcelain is not damaged or dirty Red oil gauge on top is visible halfway up the glass		+								
Bushing oil is halfway up the sight glass		+								1
No leaks from main tank or valves	+	+					-			
Record operation counter and update card	+-	+-	-							+
		+	 			····				+
Transfer OCB Line Side disconnect switch is clearly labeled	+	+-	 							-
Transfer OCB Line Side disconnect switch is grounded Transfer OCB Line Side disconnect switches are fully closed	+-	+								-
and properly aligned			1							

	Good Bad X X		Advantage of the second of the	CO	MMEN		DATE CORRECTED	CORRECTED BY		
69 kV Transfer OCB, Cont.		<u> </u>	RATING:	0	1	2	3	4	(Circle One)	· · · ·
Fransfer OCB Bus Side disconnect switch is clearly labeled	Γ									
Fransfer OCB Bus Side disconnect switch is grounded										
Transfer OCB Bus Side disconnect switches are fully closed and properly aligned										
and property anglied	-									~
69 kV D-104 OCB	J	I	RATING:	0	1	2	3	4	(Circle One)	
Emergency trip switch is labeled and painted red										
Control door is clearly labeled D-104 OCB										
Position indicator displays the "Closed" position	<u>.</u>									
Charged/Discharged flag is clearly visible	<u> </u>	\sqcup								
Emergency trip reset "69" switch is labeled & reset					· *					
Cabinet light works	<u> </u>									<u> </u>
Cabinet heater works below 60 deg F.	—	\vdash								
Cabinet is free from contamination	ļ									}
Bushing and arrestor porcelain is not damaged or dirty	1	\vdash						···········		
Red oil gauge on top is visible halfway up the glass	 	\vdash								
Bushing oil is halfway up the sight glass	+	\vdash					····			
No leaks from main tank or valves	\vdash	\vdash								<u> </u>
Record operation counter and update card D-104 OCB Line Side disconnect switch is clearly labeled	+	 		-						
D-104 OCB Line Side disconnect switch is grounded	 									-
D-104 OCB Line Side disconnect switches are fully closed and								-		
properly aligned	-	<u> </u>								
D-104 OCB Bus Side disconnect switch is clearly labeled	-									-
D-104 OCB Bus Side disconnect switch is grounded D-104 OCB Bus Side disconnect switches are fully closed and properly aligned	<u> </u>									
D-104 BYPASS DISCONNECT SWITCH is clearly labeled		 								
D-104 BYPASS DISCONNECT SWITCH is grounded										
D-104 BYPASS DISCONNECT SWITCHES are fully opened										
Oil in line PT Bushing is halfway between High & Low	-									
69 kV A-101 OCB		1	RATING:	0	1	2	3	4	(Circle One))
Emergency trip switch is labeled and painted red										
Control door is clearly labeled A-101 OCB										
Position indicator displays the "Closed" position										
Charged/Discharged flag is clearly visible										
Emergency trip reset "69" switch is labeled & reset	-									ļ
Cabinet light works	-	<u> </u>								ļ.
Cabinet heater works below 60 deg F.	ļ	<u> </u>								<u> </u>
Cabinet is free from contamination	┷	 								1
Bushing and arrestor porcelain is not damaged or dirty										
Red oil gauge on top is visible halfway up the glass	╁┈	-								
Bushing oil is halfway up the sight glass	╂	-	<u> </u>							
No leaks from main tank or valves	-	+	ļ <u> </u>					-		<u> </u>
Record operation counter and update card	+	+								
A-101 OCB Line Side disconnect switch is clearly labeled	+	+								1
A-101 OCB Line Side disconnect switch is grounded A-101 OCB Line Side disconnect switches are fully closed an properly aligned	d -									
A-101 OCB Bus Side disconnect switch is clearly labeled	1	1		-						1
A-101 OCB Bus Side disconnect switch is grounded	1	T					· · · · · · · · · · · · · · · · · · ·			
A-101 OCB Bus Side disconnect switches are fully closed and properly aligned										
A-101 BYPASS DISCONNECT SWITCH is clearly labeled										
A-101 BYPASS DISCONNECT SWITCH is grounded	T		I							1

' •	Good	Bad X	COMMENTS				DATE CORRECTED	CORRECTED BY		
69 kV A-101 OCB, Cont.			RATING:	0	1	2	3	4	(Circle One)	
A-101 BYPASS DISCONNECT SWITCHES are fully opened										
Air Pressure Gauge is between 130 & 160 PSI										
Compressor runs less than 2 hours per month (update card)	ļ									
69 kV Buss & Buss PT	1	<u> </u>	RATING:	0	1	2	3	4	(Circle One)	
Oil in bushings is halfway between High & Low										
Bushing and arrestor porcelain is not damaged or dirty					·					
Yard & Fence		1	RATING:	0	1	2	3	4	(Circle One)	· · · · · · · · · · · · · · · · · · ·
East flood light operates by switch on pole										
Fire extinguisher is mounted on the fence and charged										
The fence is secure from unathorized entry										
The fence ground connections are intact										
The structural steel is free of bird and insect nests										
Site base and grade is free of vegetation and water										
Warning signs are properly mounted on the fence										
Other:						-ma- 17-1				

Operation Counts

		Previous	Present	of Operations
69 kV	Plant Tie LTC			
	D-104 OCB			
Gen #5 Trar	sformer OCB			
	Plant Tie OCB			
Grounding Tran				
	Transfer OCB			
	A-101 OCB			
Gen #5 Trans. Tank Pressure		PSIG		
Gen #5 Trans. Liquid Temp.		Degree C spot		Degree C Max
Gen #5 Trans. Winding Temp.		Degree C spot		Degree C Max
Gen #5 Trans. Tank Oil Level	Low	25C	HIGH	
Grounding Trans. Tank Pressure		PSIG .		
Grounding Trans. Liquid Temp.		Degree C spot		Degree C Max
Grounding Trans. Tank Oil Level	Low	25C	HIGH	
Plant Trans. Liquid Temp.		Degree C spot		Degree C Max
Plant Tie Trans. Winding Temp.		Degree C spot		Degree C Max
Plant Tie Trans. Tank Oil Level	Low	25C	HIGH	
Plant Tie Trans. LTC Oil Level	Low	25C	HIGH	
Plant Tie Trans. Tank Pressure		PSIG		
Plant Tie Trans. LTC Pressure		PSIG		

1/01

Route: Dick Blashka
, Kevin Carr
Kim Hackelberg (file)

Rating Criteria: 0 - Perfect Condition

1 - Good Condition, but aging

2 - Non-critical maintenance needed (normally repair within 12 months)

3 - Priority maintenance needed (normally repair within 90 days)

4 - Urgent maintenance needed (report immediately and repair within 1 week)

MPU Mirro S	ubs	sta	tion - Mo	nt	hly	Ins	spe	ctic	n Form	i
INSPECTED BY:										
DATE:						· · · · ·				
TEMPERATURE:										
TEMPERATURE.	-									
	Good	Bad X		CO	MME	NTS			DATE CORRECTED	CORRECTED BY
199 Disconnect Switch			RATING:	0	1	2	3	4	(Circle One)	
199 Disconnect switch is clearly labeled and grounded			- · · · · · · · · · · · · · · · · · · ·							
199 Disconnect switches are fully closed & aligned										
Porcelain insulators & supports are not damaged or dirty										
Power fuses are fully closed and aligned										·
Topo of a marcon Donale #4			DATING.			2			(Cirolo One)	
Transformer Bank #1			RATING:	0	1		3	4	(Circle One)	· · · · · · · · · · · · · · · · · · ·
Tank oil level is halfway between high and low marks		<u> </u>								
Record temperature gauge peaks and reset drag hands										
Bushing and arrestor porcelain is not damaged or dirty			·							
Radiator temperature increases from bottom to top										
Tank pressures are between 1 and 4 pounds positive										
No oil leaks from main tanks radiators, valves										
		<u> </u>								L
East Yard & Fence			RATING:	0	1	2	3	4	(Circle One))
Fire extinguisher is mounted on the fence and charged										
The fence is secure from unathorized entry										
The fence ground connections are intact										
The structural steel is free of bird and insect nests										<u></u>
Site base and grade is free of vegetation and water										
Warning signs are properly mounted on the fence										
		<u> </u>	· · · · · · · · · · · · · · · · · · ·							
Control Power Transformer			RATING:	0	1	2	3	4	(Circle One	
Bushings are not damaged or dirty		T								
Fuse cutouts are fully closed and secure										
Bushings and main tank is clear of bird and insect nests										
			<u> </u>							L
4 kV Buss & PTs			RATING:	0	1	2	3	4	(Circle One)
Porcelain bushings are not damaged or dirty										
Buss work is clear of bird and insect nests										
Grounding resistor is clear of bird and insect nests										
299 Disconnect Switch			RATING:	0	1	2	3	4	(Circle One)
299 Disconnect switch is clearly labeled and grounded										
299 Disconnect switches are fully closed & aligned										ļ
Porcelain insulators & supports are not damaged or dirty										<u> </u>
Power fuses are fully closed and aligned										
		-					,			
		 								
		 								ļ
H		1								

· · · · · ·	Good	Bad		CO	MME	NTS			DATE CORRECTED	CORRECTE BY
Transformer Bank #2 Main Tank			RATING:	0	1	2	3	4	(Circle One)	
Tank oil level is halfway between high and low marks	T	<u> </u>								
Record temperature gauge peaks and reset drag hands				***						
Bushing and arrestor porcelain is not damaged or dirty	1							*		
Radiator temperature increases from bottom to top										
Tank pressures are between 1 and 4 pounds positive			***					····		
No oil leaks from main tanks radiators, valves	1		·							
Oil is halfway up bushing sight glass	1									
Cooling fans work when placed in Manual	1							·		
Transformer Bank #2 LTC										
Transformer Bank #2 L C	_		RATING:	0	1	2	3	4	(Circle One)	
Door is labeled transformer Bank #2 LTC										-
LTC Tank oil level is between High & Low										
Verify LTC is in neutral pos. & Raise/Lower switch is OFF	<u> </u>	لــــا								
Cabinet light works										
Cabinet heater works below 60 deg F.										
No signs of cabinet contamination		LI								
LTC Tank pressure between 1 and 4 pounds positive										······································
Record temperature drag hands and reset										
Record LTC position peaks and reset										
Record LTC operation counter and update card										
399 Disconnect Switch	<u>1</u>	LI	RATING:	0	1	2	3	4	(Circle One)	
399 Disconnect switch is clearly labeled and grounded	1 7								(Circle One)	
399 Disconnect switches are fully closed & aligned		\dashv								*
Porcelain insulators & supports are not damaged or dirty					-					
Power fuses are fully closed and aligned										
the table are tany crossed and anglied	1	-								
Transformer Bank #3 Main Tank	<u> </u>	<u> </u>	RATING:	0	1	2	3	4	(Circle One)	
Tank oil level is halfway between high and low marks			***							
Record temperature gauge peaks and reset drag hands										
Bushing and arrestor porcelain is not damaged or dirty										
Radiator temperature increases from bottom to top										
Tank pressures are between 1 and 4 pounds positive			****							
No oil leaks from main tanks radiators, valves				740						·
Oil is halfway up bushing sight glass										
Cooling fans work when placed in Manual			· · · · · · · · · · · · · · · · · · ·							
SCADA RTU Cabinet			RATING:	0	1	2	3	4	(Circle One)	
Cabinet heater is warm below 60 deg F									T	-
Cabinet does not show signs of internal moisture										
Cabinet is free of contamination										
AC load center breakers have no flags										
he D1, D2, D4 LEDs flash sequentially	\square	\Box								
West Yard and Fence	<u></u> 1		RATING:	0	1	2	3	4	(Cirolo One)	
ire extinguisher is mounted on the fence and charged	Г			- -					(Circle One)	
he fence is secure from unathorized entry		\dashv	· · · · · · · · · · · · · · · · · · ·							
he fence ground connections are intact		\dashv	7.7.7.					 -		
he structural steel is free of bird and insect nests		_					,			
ite base and grade is free of vegetation and water	\vdash	\dashv							-	·
ite base and grade is free of vegetation and water										

	HV1153			HV1152	
	PSIG		PSIC	3	
	°C		°C		
Low	25C	HIGH	Low	25C	HIGH
	HV1151		_	HV1150	
	PSIG		PSIC	3	
	°C		°C		
Low	25C	HIGH	Low	25C	HIGH
	PSIG				
	°C				
Low	25C	HIGH	_		
Low	25C	HIGH	_		
	PSIG				
	°C				
Low	25C	HIGH	_		
	Low Low	PSIG	PSIG °C Low 25C HIGH HV1151 PSIG °C Low 25C HIGH PSIG °C Low 25C HIGH PSIG °C Low 25C HIGH PSIG °C	PSIG °C Low 25C HIGH HV1151 PSIG °C C Low 25C HIGH PSIG °C C C C C C C C C C C C C	PSIG

Rouțe: Dick Blashka
Kevin Carr
Kim Hackelberg (file)

Rating Criteria: 0 - Perfect Condition

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MPU Rapids S	uk)sta	ation - M	on	thly	/ In	sp	ectio	n Form	
INSPECTED BY:										
DATE:						***************************************				
TEMPERATURE:							***			
TEM ETOTOLE.										
		D							DATE	CODDICTED
	Good	Bad		CON	IMEN	ITS			DATE CORRECTED	CORRECTED BY
69 kV B-102 OCB			RATING:	0	1	2	3	4	(Circle One)	
Emergency trip switch is labeled and painted red	T				*					
Control door is clearly labeled B-102 OCB										
Position indicator displays the "Closed" position										
Charged/Discharged flag is clearly visible			·					**		
Emergency trip reset "69" switch is labeled & reset	\vdash									
Cabinet light works				-						
Cabinet heater works below 60 deg F.		\Box			_					
Cabinet is free from contamination										
Bushing and arrestor porcelain is not damaged or dirty								· ·		
Red oil gauge on top is visible halfway up the glass			•							
Bushing oil is halfway up the sight glass										
No leaks from main tank or valves									-	
Record operation counter and update card										
B-102 OCB Line Side disconnect switch is clearly labeled							-			
B-102 OCB Line Side disconnect switch is grounded B-102 OCB Line Side disconnect switches are fully closed and										
properly aligned B-102 OCB Buss Side disconnect switch is clearly labeled	_	 								
B-102 OCB Buss Side disconnect switch is grounded B-102 OCB Buss Side disconnect switches are fully closed and		\Box								
properly aligned Oil level in PT bushings between High & Low marks	├	\vdash		.				<u>, </u>		-
Air Pressure gauge between 130 and 160 psi	 	1								
Compressor ran less than 2 hours/month	\vdash						-		-	
	\vdash	\vdash								
Power resistor in the B-102 line PT JCT Box is warm Voltage at terminals BLV1 and BLV2 in B-102 line PT JCT box is between 108 and 132 volts										
	\vdash	\vdash						***		
69 kV Buss and PT	-:		RATING:	0	1	2	3	4	(Circle One)	
Porcelain bushing, buss supports, and switch posts are not damaged or dirty										
Oil level in primary bushing is between High & Low Voltages between fuses of ground in the 69 kV Bus Pot fuse		\vdash								
box are between 108 & 132 or 62 & 76 volts	₩	₩								
99 switch is clearly labeled and grounded	├─									
99 switch is fully closed and properly aligned	├	$\vdash \vdash \vdash$								
Power resistor in PT JCT box is warm	╫	\vdash								
	├	\vdash							 	
	\vdash	$\vdash \vdash$								
	├	┼						,		
	├─	╂╼╾┼					-		 	
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									1	
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Approved

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,	Good	Bad X		CO	MME	NTS			DATE CORRECTED	CORRECTED BY
Yard & Fence			RATING:	0	1	2	3	4	(Circle One)	
Two flood lights work when on	Γ.								ì	
Fire extinguisher is mounted on the fence and charged										
Fence is secure from unauthorized entry			· · · · · · · · · · · · · · · · · · ·							
Fence ground connections are intact										
Structural steel is free of bird and insect nests										
Site base and grade is free of vegetation and water										
Warning signs are properly mounted on the fence				-						
Panel N1	<u> </u>	<u> </u>	RATING:	0	1	2	3	4	(Circle One)	
Synchroscope stops at 12:00 when on										
White B-102 LINE IND WL Line Potential lamp is lit	1									
Two RED lamps above B-102 101 switch are lit										
B-102 101 ES control switch DISPLAYS A RED TARGET										
			***************************************							***.
Panel N3			RATING:	0	1	2	3	4	(Circle One)	
Note annunicator alarms and acknowledge										
All panels light up & flash when press "TEST"										
All panels stop flashing when press "ACK"										
All panel lights go out when press "RESET"	<u> </u>									
					· · · · · · · · · · · · · · · · · · ·					
Panel N4			RATING:	0	1	2	3	4	(Circle One)	
Bus 1 87B1 PVD Bus differential relay targets display "RESET"										
Bus 1 86B1 IND RL RED LAMP is lit										
Bus 1 86B1 LOR/ER lockout Relay Switch target in "Black"										
reset position	 	-								
SCADA Panel	<u> </u>	<u> </u>	RATING:	0	1	2	3	4	(Circle One)	
"ILEX" is displayed on LED display	T	T							- 1	
D1, D2, D4 LEDs flash sequentially	1	<u> </u>								*
DI, DL, D-1 LLDS Hash sequentially	1	 								
Panel S2	1		RATING:	0	1	2	3	4	(Circle One)	
Relay targets are reset	l									
	—	<u> </u>								
Pilot Wire Readings		ļ	RATING:	0	1	2	3	4	(Circle One)	
Record B-102 WATTS & VARS from digital meter Record Pilot Wire mA using B-102 PW TS TEST SWITCH		├								
(read mA from lower scale with test switch handle out)		ļ		,						
Verify that the pilot wire Monitoring Ammeter (located in the 74 relay) is between 0.7 and 1.1 mA	1									

	<u> </u>									
	<u> </u>	<u> </u>								
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	1	ļ								
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	1	<u> </u>	<u></u>							

· · · · · · · · · · · · · · · · · · ·	Good	Bad X		CO	MME	STS			DATE	CORRECTE
Battery	1 ^	~	RATING:	0	1	2	3	4	(Circle One)	BY
OC ammeter reads about 5 amps	T	Т							ì	
OC voltmeter on charger measures 60 volts with the GRD TEST switch in + position										
OC voltmeter on charger measures 60 volts with the GRD TEST switch in - position				-						
Liquid level in cells 1 - 58 is between LOW & HIGH level								•		
A full bottle with a current expiration date is available				·						
Face shield and specific gravity tester is available										
Specific gravity in test cell is 1.200 after corrected										11
NO sign of electrolyte leaks from the cells										
NO sign of corrosion on the intercell straps Float voltage on charger and measured from battery rack is 30.5 volts										
Control House / General	<u> </u>	11_	RATING:	0	1	2	3	4	(Circle One)	
Wall clock displays proper time	Τ		· · · · · · · · · · · · · · · · · · ·							
AC load center breakers do not display trip flags					·				· · · · · · · · · · · · · · · · · · ·	
Room temperature is between 60 - 80 degrees F.										
NO sign of rodent infestation				_						
Emergency Contact Directory present & phone dialtone										
Empty waste bin and sweep as required										
Place entry in log book and notify plant operator										

Other:			
	 ·	 	
		 	

Operation Counts

	Previous	Present	of Operations
B-102 OC	В		
		<u></u>	
B-102 WATTS			
B-102 VARS	_		
Circulating Current			
Local Current			
Remote Current			

Specific Gravity Tests

- #1. Read the temperature correction factor off the thermometer (0.001 for each 3 deg. Difference from 77 deg. F)
- #2. Draw a liquid sample with the syringe and read the specific gravity off the float.
- #3. Subtract any negative correction from the third decimal of the specific gravity reading (for example: with a -4 correction at 65 deg F and a specific gravity of 1.213, the corrected specific gravity is 1.209)
- #4. If the temperature is above 77 deg F, the correction factor must be added to the specific gravity (for example: with a +4 correction at 89 deg. F and a specific gravity of 1.213, the corrected specific gravity is 1.217)

Rating Criteria: 0 - Perfect Condition

- 1 Good Condition, but aging
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MPU "A" Sul	bst	tati	on - N	vion	ith	ıy I	nsp	oec	tior	rorm	
INSPECTED BY:											
DATE:											
TEMPERATURE:											
	Good	Bad			601		7000		-	DATE	CORRECTED
	X	X			COM	IMEN	ITS			CORRECTED	BY
13.2 kV Buss			RAT	ING:	0	1	2	3	4	(Circle One)	
Porcelain insulators & supports are not damaged or dirty											
Disconnect switches are fuly closed & propery aligned											
Both yard lights operate when switch is ON											
Structural steel is clear of bird and insect nests											
East Transformer Main Tank			RAT	ING:	0	1	2	3	4	(Circle One)	
Tank oil level is halfway between high and low marks											
Bushing and arrestor porcelain is not damaged or dirty											
Tank pressure is between 1 & 4 pounds positive											
No oil leaks from main tank, radiators, valves											
Cooling fans work when placed in manual											
Record temperature gauge peaks and reset hands											
Radiator temperature increases from bottom to top							J	······································			
East Transformer LTC	l		RAT	ING:	0	1	2	3	4	(Circle One)	
Oil level is halfway between high and low marks											
Record temperature drag hand positions and reset											
Cabinet light works											
Record LTC operation counter & update card											
Record LTC position peaks and reset						,					
Cabinet heater works below 60 deg F.											
"OK" LED on the M-2001 tap changer control is lit	L.										
No signs of cabinet contamination											
LTC tank pressure between 1&4 pounds positive	<u> </u>	1									
LTC door is labeled "EAST TRANSFORMER LTC"	<u> </u>										
Oil level on INERT GAS side of expansion tank is lower than ATMOSPHERE side	4.										
East Aux Compartment - Front			RA1	ING:	0	1	2	3	4	(Circle One)	
Door is labeled "EAST AUXILIARY"											
Compartment light works											
Compartment heater is warm											
Record any relay targets											
Record voltage for each phase (on back page)											
Charger votlage is between 28 & 30 VDC		<u> </u>									
Charger amps is approximately zero	1	<u> </u>									
Compartment is free from contamination	<u> </u>	<u> </u>									
	 	 									ļ
	1	 									
		<u> </u>									1

	Good	Bad X		COI	MMEN	NTS	· · · · · · · · · · · · · · · · · · ·		DATE COF	RECTED BY
East Comp: Main, 2A, 1A - Front			RATING:	0	1	2	3	4	(Circle One)	
Compartment doors are clearly labeled										
Compartment lights work										
Appropriate Green/Red breaker position lamps are lit										
Compartment heaters are warm					_					
Record targets and reset										
Record maximum & spot amps for each phase & reset	1									
Compartment is free from contamination	-									
East Comp: Main, 2A, 1A - Rear	<u>1</u>	<u> </u>	RATING:	0	1	2	3	4	(Circle One)	
OPEN/CLOSED indicator is properly displayed										
Compartment doors are clearly labeled										
Compartment lights work										
Manual trip button is labeled and painted Red										
No leaks from breaker tank										
Update counter card										
Compartment is free from contamination										
East Aux Compartment - Rear	<u>.l</u>		RATING:	0	1	2	3	4	(Circle One)	
Compartment door is labeled "EAST AUX"	Т	1	· · · · ·							
Compartment lights work	+	1								
Control power breaker handle in "ON" position	1									
PT compartment door is secure	 				,					
Compartment is free from contamination										
Mark Transfermen Main Toul		<u> </u>	DATING		4	2			(Cirolo Ono)	
West Transformer Main Tank	<u> </u>		RATING:	0	1		3	4	(Circle One)	
Tank oil level is halfway between high and low marks		-								
Bushing and arrestor porcelain is not damaged or dirty	+	-								
Tank pressure is between 1 & 4 pounds positive	+	├								
No oil leaks from main tank, radiators, valves	+	╀								
Cooling fans work when placed in manual		 								
Record temperature gauge peaks and reset hands	-	-							- 	
Radiator temperature increases from bottom to top	+									· · · · · · · · · · · · · · · · · · ·
West Transformer LTC			RATING:		1	2	3	4	(Circle One)	
	-		KATING.					-	(Circle One)	
Oil level is halfway between high and low marks	+	+						**		
Record temperature drag hand positions and reset	· ·	 								
Cabinet light works		+								
Record LTC operation counter & update card Record LTC position peaks and reset		+-								
UK SCOTA L. L. DOSUION DESKS SNA FEGET		1	Ī							
	+	 								
Cabinet heater works below 60 deg F.	-	-		_						
Cabinet heater works below 60 deg F. "OK" LED on the M-2001 tap changer control is lit										
Cabinet heater works below 60 deg F. "OK" LED on the M-2001 tap changer control is lit No signs of cabinet contamination										-
Cabinet heater works below 60 deg F. "OK" LED on the M-2001 tap changer control is lit No signs of cabinet contamination LTC tank pressure between 1&4 pounds positive										
Cabinet heater works below 60 deg F. "OK" LED on the M-2001 tap changer control is lit No signs of cabinet contamination	1									
Cabinet heater works below 60 deg F. "OK" LED on the M-2001 tap changer control is lit No signs of cabinet contamination LTC tank pressure between 1&4 pounds positive LTC door is labeled "WEST TRANSFORMER LTC" Oil level on INERT GAS side of expansion tank is lower than										
Cabinet heater works below 60 deg F. "OK" LED on the M-2001 tap changer control is lit No signs of cabinet contamination LTC tank pressure between 1&4 pounds positive LTC door is labeled "WEST TRANSFORMER LTC" Oil level on INERT GAS side of expansion tank is lower than	1									
Cabinet heater works below 60 deg F. "OK" LED on the M-2001 tap changer control is lit No signs of cabinet contamination LTC tank pressure between 1&4 pounds positive LTC door is labeled "WEST TRANSFORMER LTC" Oil level on INERT GAS side of expansion tank is lower than	1									
Cabinet heater works below 60 deg F. "OK" LED on the M-2001 tap changer control is lit No signs of cabinet contamination LTC tank pressure between 1&4 pounds positive LTC door is labeled "WEST TRANSFORMER LTC" Oil level on INERT GAS side of expansion tank is lower than	1									
Cabinet heater works below 60 deg F. "OK" LED on the M-2001 tap changer control is lit No signs of cabinet contamination LTC tank pressure between 1&4 pounds positive LTC door is labeled "WEST TRANSFORMER LTC" Oil level on INERT GAS side of expansion tank is lower than										

*	Good	Bad X		CO	MME	NTS			DATE CORRECTED	CORRECTE BY
West Aux Compartment - Front			RATING:	0	1	2	3	4	(Circle One)	
Door is labeled "WEST AUXILIARY"										
Compartment light works						_				
Compartment heater is warm										
Record any relay targets										
Record voltage for each phase (on back page)										
Compartment is free from contamination										
West Comp: Main, 5A, 4A, 3A - Fro	nt		RATING:	0	1	2	3	4	(Circle One)	
Compartment doors are clearly labeled									- (Oncie One)	·
Compartment lights work	+									· · · · · · · · · · · · · · · · · · ·
Appropriate Green/Red breaker position lamps are lit										· · · · · · · · · · · · · · · · · · ·
Compartment heaters are warm										·
Record targets and reset	_			_						
Record maximum & spot amps for each phase & reset	-									
Compartment is free from contamination	+									 -
				-						
West Comp: Main, 5A, 4A, 3A - Rea	r		RATING:	0	1	2	3	4	(Circle One)	
OPEN/CLOSED indicator is properly displayed										
Compartment doors are clearly labeled										
Compartment lights work					*					
Manual trip button is labeled and painted Red								,,		
No leaks from breaker tank									1	
Update counter card						*				
Compartment is free from contamination										
Wost Aux Compartment Des										
West Aux Compartment - Rear			RATING:	0	1	2	3	4	(Circle One)	
Compartment door is labeled "WEST AUX"										····
Compartment lights work										-
Control power breaker handle in "ON" position	\perp									
T compartment door is secure		\perp								
Compartment is free from contamination										
Yard & Fence			RATING:	0	1	2	3	4	(Circle One)	
ire extinguisher is mounted on the fence and charged	$\perp \perp$								Γ	
ence is secure from unathorized entry	-									
ence ground connections are intact										
tructural steel is free of bird and insect nests										
ite base and grade is free of vegetation and water	$+ \perp$									
Varning signs are properly mounted on the fence	+									
ecurity Lights work when switch is on	+	_		<u> </u>						
24 V Battery	1_1		RATING:	0	1	2	3		(Circle Cons	
iquid level is cells 1-12 is between High & Low level	т	- 1	15711115.	-	<u>'</u>		<u> </u>	4	(Circle One)	
full bottle with current experiation date is available	+	-								
ace shield and specific gravity tester is available	+-+	-+								
pecific gravity is test cell is above 1,200 when corrected	+									
cater is warm	+-+									
o sign of electrolyte leaks from the cells	+									
o sign of corrosion on the intercell straps	+	\dashv								

ther:							
		· · · · · · · · · · · · · · · · · · ·					
peration Counts							
Formula Counts	T	Device	Previous	l Bussell	N 1 00	ı	
		ocvice	1 Tevious	Present	Number of Operation	s	
	East Ti	rans. LTC]	
	East N	Iain ACB				1	
		2A ACB				1	
		1A ACB					
		rans. LTC					
	West M	ain ACB.				7	
		5A ACB					
		4A ACB					
		3A ACB		<u> </u>	<u></u>		
	MAX	K AMPS			SPOT AMPS		
	A	В	C	A	B B	C	
East Main						$\overline{}$	
2A			-			 	
1A						 	-
West Main					<u> </u>		
5A							7
3A							
4A[······································				
				VOI T			
			A	VOLTS B			
East Trans Fro	Aux Compartment	Г	A	1	C	7	
	Aux Compartment	-				-	
	-	L-				j	
	Liquid Temperature			MAX		SPOT	
	ans Tank Oil Level	LOW		25C		HIGH	
	rans LTC Oil Level	LOW_		25C		HIGH	
	rans Inert Gas Side	LOW_		FILL LEVEL		HIGH	
East Tran	s Atmosphere Side	LOW_	·	_ FILL LEVEL]		HIGH	
West Trans I	iquid Temperature			° C MAX		° C SPOT	
	ans Tank Oil Level	LOW				HIGH	
West Ti	ans LTC Oil Level	LOW				HIGH	
	rans Inert Gas Side	LOW		FILL LEVEL	· · · · · · · · · · · · · · · · · · ·	HIGH	
West Tran	s Atmosphere Side	LOW		FILL LEVEL		HIGH	
Fact '	Frans. LTC Limits:					•	
Last	- LIC LIIIIUS:		/laximum pot	We	st Trans. LTC Limits:		Maxim
			pot Iinimum				_Spot Minimu

Specific Gravity Tests

- #1. Read the temperature corrrection factor off the thermometer (0.001 for each 3 deg. Difference from 77 deg. F)
- #2. Draw a liquid sample with the syringe and read the specific gravity off the float.
- #3. Subtract any negative correction from the third decimal of the specific gravity reading (for example: with a -4 correction at 65 deg F and a specific gravity of 1.213, the corrected specific gravity is 1.209)
- #4. If the temperature is above 77 deg F, the correction factor must be added to the specific gravity (for example: with a +4 correction at 89 deg. F and a specific gravity of 1.213, the corrected specific gravity is 1.217)

Approved

APPENDIX D

Annual Substation Inspection Form

ANNUAL SUBSTATION INSPECTION FORM

Substation in Special Control for the Battery Equipment Listing Equipment Listing Equipment Listing Equipment for level Check equipment for level Check condition of concrete pads Check condition of condition Check equipment for level Check condition of condition Check equipment paint condition Check equipment paint condition Check equipment paint condition Check condition of concrete pads Coll specific gravity Coll specific gravity If y V KF I Urgent Maintenance Required Control house battery Control house battery Transmission line RFI Transmission line RFI Control house battery Transmission line RFI Control house battery Control hous	Date	edsul	spected by					Substation	1	
Check equipment for level Check equipment for level Check equipment for level Check condition of concrete pads Check condition of concrete pads Perform oil and DGA analysis Check condition of concrete pads resistance, Indercell strap Rating Checks - Intercell strap Resistance, Individual cell voltages, Cell specific gravity Nameplate legible Equipment paint condition Proper identification but aging Checks RPH RPH RPH RPH Date Item Corrected		SUBS	TATION INSPEC	TION CF	RITERIA	∢		COMMENTS	MAINTE	NANCE
losers losers tery tery	EQUIPMENT LISTING	Check condition of concrete pads	Battery checks - Intercell strap resistance, Individual cell voltages,	Nameplate legible	Equipment paint condition	Proper identification labels		Rating Criteria 0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenance Required	Date Item Corrected	Corrected By
It or regulators ligh Voltage Breaker leeder CBs / Reclosers witches witches control house battery ransmission line RFI	ransformer									
ligh Voltage Breaker eeder CBs / Reclosers witches witches control house battery ransmission line RFI	TC or regulators									
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	ontrol house battery									

APPENDIX E

Annual Transmission Inspection Form

ANNUAL TRANSMISSION INSPECTION FORM

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Sub

___ Inspected by__

Date

	Corrected	λα																						
	Date Item Corrected																							
COMMENTS	ging nce equired																							
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	Arresters																							
	Switches																		\dagger	1	\dagger			
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